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PROVINCIAL MINISTERS OF MINES

25th ANNUAL CONFERENCE

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PROCEEDINGS



CHÂTEAU FRONTENAC - QUEBEC
SEPTEMBER 15 - 18, 1968

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PROCEEDINGS

TWENTY-FIFTH ANNUAL CONFERENCE

of the

PROVINCIAL MINISTERS OF MINES

September 15 to 18, 1968

Château Frontenac-Quebec

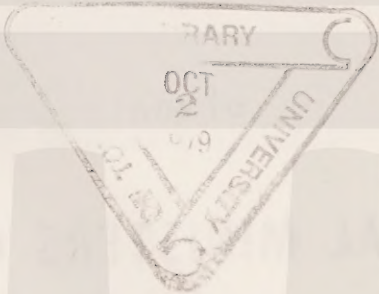
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Chairman

HONOURABLE PAUL-E. ALLARD
Minister of Natural Resources

Quebec

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FOREWORD

To the Honourable Ministers, the Deputy Ministers and
Delegates to the 25th Annual Conference of the Provincial
Ministers of Mines

Gentlemen:

I have the honour to present herein the
Proceedings of the 25th Annual Conference of the Provincial
Ministers of Mines.

It was indeed a great pleasure for me and
the officers of my Department to welcome you in "La Belle
Province" and we hope that you all enjoyed our hospitality
as much as we appreciated meeting you.

May I wish you that you come back as
often as you possibly can both for the pleasure of seeing a
different city and for the purpose of talking over with us
matters that are of the utmost interest to us all who are
concerned with the progress of our mining industry.

Sincerely yours

Paul-E. Allard

DATES AND PLACES
of the
ANNUAL CONFERENCES
of the
PROVINCIAL MINISTERS OF MINES

Conference		Date	Place
First	1945	April 14-16	Quebec, P.Q.
Second	1945	November 22-23	Toronto, Ontario
Third	1946	September 23-27	Winnipeg, Manitoba
Fourth	1947	September 3-5	Keltic Lodge, Nova Scotia
Fifth	1948	September 2-4	Jasper, Alberta
Sixth	1949	September 7-10	Fredericton, New Brunswick
Seventh	1950	September 13-16	Victoria, British Columbia
Eighth	1951	September 4-8	Saskatoon, Saskatchewan
Ninth	1952	September 15-17	Quebec, P.Q.
Tenth	1953	September 16-18	Niagara Falls, Ontario
Eleventh	1954	September 20-22	Winnipeg, Manitoba
Twelfth	1955	September 12-14	Keltic Lodge, Nova Scotia
Thirteenth	1956	September 10-12	Lake Louise, Alberta
Fourteenth	1957	September 4-6	Vancouver, British Columbia
Fifteenth	1958	September 3-5	St. Andrews, New Brunswick
Sixteenth	1959	September 14-16	Regina, Saskatchewan
Seventeenth	1960	October 16-19	Quebec, P.Q.
Eighteenth	1961	September 17-20	Toronto, Ontario
Nineteenth	1962	September 16-18	Winnipeg, Manitoba
Twentieth	1963	September 15-18	Halifax, Nova Scotia
Twenty-first	1964	September 6-9	Banff, Alberta
Twenty-second	1965	September 12-15	Victoria, British Columbia
Twenty-third	1966	September 18-21	Saint John, New Brunswick
Twenty-fourth	1967	September 17-20	Regina, Saskatchewan
Twenty-fifth	1968	September 15-18	Québec City, P.Q.

PROVINCIAL MINISTERS OF MINES AND DEPUTY MINISTERS
AT THE TIME OF THE TWENTY-FIFTH ANNUAL CONFERENCE
OF THE MINISTERS OF MINES

MINISTERS OF MINES

Honourable William Callahan,
Minister of Mines, Agriculture and Resources,
Newfoundland and Labrador

Honourable D.M. Smith,
Minister of Mines,
Nova Scotia

Honourable Cecil A. Miller,
Minister of Industry and Natural Resources,
Prince Edward Island

Honourable William R. Duffie,
Minister of Natural Resources,
New Brunswick

Honourable Paul-E. Allard,
Minister of Natural Resources,
Quebec

Honourable Allan Lawrence,
Minister of Mines,
Ontario

Honourable Donald W. Craik,
Minister of Mines and Natural Resources,
Manitoba

Honourable A.C. Cameron,
Minister of Mineral Resources,
Saskatchewan

Honourable A.E. Patrick,
Minister of Mines and Minerals,
Alberta

Honourable Frank Richter,
Minister of Mines and Petroleum Resources,
British Columbia

DEPUTY MINISTERS

Mr. Frederick Gover	Newfoundland and Labrador
Dr. J.P. Nowlan	Nova Scotia
Mr. P.A. Murnaghan	Prince Edward Island
Mr. R.L. Bishop	New Brunswick
Dr. P.-E. Auger	Quebec
Mr. D.P. Douglass	Ontario
Mr. W.W. Mair	Manitoba
Mr. J.T. Cawley	Saskatchewan
Mr. H.H. Somerville	Alberta
Mr. K.B. Blakey	British Columbia

CONFERENCE ORGANIZATION COMMITTEE

Chairman

Honourable Paul-E. Allard
Minister of Natural Resources

Deputy Chairman

Paul-E. Auger
Deputy Minister of Natural Resources

General Secretary

J.E. Gilbert
Associate Deputy Minister of Natural Resources

SUB-COMMITTEES

Programme

P.-E. Grenier Robert Assad Louis-G. Tanguay Jean Têtu

Press & Public Relations

Patrick Thériault Jacques Waquant

Transportation and Tours

Jean-Paul Bolduc Gontran Foy

Entertainment

Raymond Paquet René Dallaire

Ladies' Committee

Mrs Paul-E. Allard Mrs. Paul-E. Auger

Ladies Liaison

Denys Pouliot

Reservations

Robert Bergeron

Registration

André Laurin Marc Foy

Secretariat

Gisèle Landreville

P R O G R A M M E

Sunday, September 15

- 08:00 hrs. - Registration - (Madeleine de Verchères)
- 11:10 hrs. - Sightseeing tour
- 15:00 hrs. - Meeting of Subcommittee on Mineral Statistics - (Lévis)
- 18:00 hrs. - Sightseeing tour
- 19:00 hrs. - Meeting of Provincial Mining Associations - (St. Louis)
- 21:00 hrs. - Coffee Party for Delegates and Ladies - (Champlain)

Monday, September 16

- 08:30 hrs. - Registration - (Madeleine de Verchères)
- 09:00 hrs. - Meeting of Ministers and Deputy Ministers
- 10:00 hrs. - Opening Session - (Salle de Bal)
 - Chairman: Honourable Paul-E. Allard, Minister of Natural Resources
 - Speakers: Honourable J.J. Greene, Minister of Energy, Mines and Resources of Canada.
 - Reply will be made to brief submitted to the Government of Canada following the Twenty-fourth Annual Conference of the Provincial Ministers of Mines.
 - Mr. Marcel Bélanger, c.a., Bélanger, Dallaire & Gagnon, Chartered Accountants, Professor of Public Administration, Laval University.
 - The Canadian Economy.
- 10:30 hrs. - Sightseeing tour
- 14:00 hrs. - Committee Meetings (Nos. 1, 2, 3, 4 and 6)
 - Technical Subcommittee Meeting No. 5
 - Lands Subcommittee Meeting No. 5
- 16:30 hrs. - Meeting of Ministers and Deputy Ministers
- 17:30 hrs. - Departure from Château Frontenac for Lac Beauport (by bus)
- 19:00 hrs. - Reception for Delegates and Ladies, Château Lac Beauport
- 19:30 hrs. - Buffet for Delegates and Ladies, Château Lac Beauport

Tuesday, September 17

- 09:00 hrs. - Committees Meetings
- 10:30 hrs. - Sightseeing tour
- 12:15 hrs. - Private luncheon, Ministers and Deputy Ministers
- 14:00 hrs. - Committees Meetings
- 16:30 hrs. - Meeting of Ministers and Deputy Ministers
- 19:15 hrs. - Annual Dinner (Courtesy of the Province of Quebec) - (Salle de Bal)
 - Chairman: Honourable Paul-E. Allard, Minister of Natural Resources
- 22:00 hrs. - Meeting of Ministers and Deputy Ministers

Wednesday, September 18

- 9.00 hrs. - Meeting of Ministers and Deputy Ministers
10:00 hrs. - Closing Session - (Salle de Bal)
 Chairman: Honourable Paul-E. Allard, Minister of
 Natural Resources
 Announcement of decisions of Ministers
 New Business
12:30 hrs. - Departure - Industrial Tour
 Lake Asbestos of Quebec Limited
 Black Lake, Quebec
17:30 hrs. - Return trip to Quebec

LADIES' PROGRAMME

Sunday, September 15

- 13:00 hrs. - Sightseeing tour
15:30 hrs. - Sightseeing tour
21:00 hrs. - Coffee Party

Monday, September 16

- 10:30 hrs. - Sightseeing tour
12:00 hrs. - Luncheon - Moulin St-Laurent, Ile d'Orléans
19:00 hrs. - Reception and Buffet - Château Lac Beauport

Tuesday, September 17

- 10:30 hrs. - Sightseeing tour
13:30 hrs. - Visit to shopping centers, boul. Laurier

Wednesday, September 18

- 18:15 hrs. - Reception (Champlain and Jacques-Cartier
 Château Frontenac)
19:15 hrs. - Annual Dinner (Salle de Bal - Château Frontenac)

LIST OF REGISTERED DELEGATES, OBSERVERS AND GUESTS

BRITISH COLUMBIA

DELEGATES

BALSLEY, G.	Kaiser Coal Ltd.
BLAKEY, K.B.	Deputy Minister, Dept. of Mines and Petroleum Resources
BROWNING, J.M.	Tenneco Oil and Minerals Ltd.
DINGLE, W.B.	Imperial Oil Limited
EBBELS, J.C.	Shell Canada Limited
GRITZUK, N.	Granduc Operating Company
HEDLEY, M.S.	Dept. of Mines and Petroleum Resources
HOPE-ROSS, W.	Placid Oil Company
INGRAM, W.L.	Dept. of Mines and Petroleum Resources
JAMES, A.R.C.	Dept. of Mines and Petroleum Resources
LITTLE, J.D.	Placer Development Limited
MATHEW, P.R.	The Granby Mining Co. Limited
MCGILLIVRAY, G.B.	Canadian Petroleum Association
MCINTOSH, A.M.	Pacific Petroleums Ltd.
MCKINNON, M.C.	Central-Del Rio Oils Ltd.
MERRETT, J.E.	Dept. of Mines and Petroleum Resources
MITCHELL, C.H.	Mining Ass. of British Columbia
MOSS, R.E.	Dept. of Mines and Petroleum Resources
ROTHMAN, S.M.	Cominco Limited
TOMCZAC, J.F.	Dept. of Mines and Petroleum Resources
UPHAM, M.A.	Granduc Operating Company
WILSON, W.	Dept. of Mines and Petroleum Resources

ALBERTA

DELEGATES

AUSTIN, M.E.	Sun Oil Company
CURRIE, J.	Tenneco Oil and Minerals Ltd.

FROCKLAGE, R.J.	Canadian Petroleum Association
GOVIER, G.W.	Department of Mines and Minerals
GROSSMAN, W.L.	Shell Canada Limited
HARQUAIL, F.J.	Coleman Collieries Ltd.
HARVIE, D.S.	Canadian Fina Oil Limited
HILDENBRAND, F.A.	Atlantic Richfield Company
HOLUBOWICH, F.	Department of Mines and Minerals
JORDAN, D.R.	Department of Mines and Minerals
LOUGHEED, D.D.	Imperial Oil Limited
McKINNON, F.A.	Triad Oil Co. Limited
MEEKER, J.C.	Pan American Petroleum Corp.
MELSON, P.	Department of Mines and Minerals
NIELSON, A.R.	Mobil Oil Canada, Ltd.
PROCTOR, J.W.	Canadian Petroleum Association
ROARK, G.E.	Husky Oil Canada Ltd.
RUDOLPH, J.C.	Banff Oil Ltd.
SCHMIDT, P.G.	Department of Mines and Minerals
SEATON, R.A.	Department of Mines and Minerals
SOMERVILLE, H.H.	Deputy Minister, Dept. of Mines and Minerals
STEVENS, W.I.	The British American Oil Company Limited
THOMPSON, H.S.	Canada-Cities Service Petroleum Corp.
WHITTAKER, W.C.	The Coal Operators' Ass. of Western Canada

OBSERVERS

BOOTH, Harry	Independent Petroleum Ass. of Canada
BOYD, K.J.	Texaco Expl. Company
BREDIN, E.M.	Mobil Oil Canada, Ltd.
BROWN, L.I.	Canadian Petroleum Association
CLARK, D.B.	Northern Oil Explorers Ltd.
CULLIMORE, P.J.	Luscar Limited
FABRO, E.	Coleman Collieries Limited
FULLER, K.W.	Oil and Gas Conservation Board
GERMOND, K.W.	Forest Oil Corporation
GUYER, J.E.	Guyer Oil Company, Limited
KELLAM, G.D.	Canadian Western Natural Gas Co. Ltd.
LEITCH, D.B.	Union Oil Company of Canada Ltd.
LEWIS, D.E.	Imperial Oil Limited
MCDONALD, P.C.	Murphy Oil Company Ltd.
MILLARD, V.	Oil and Gas Conservation Board
MITCHELL, D.E.	Great Plains Development Co.
MUIR, R.C.	The British American Oil Co. Ltd.

PORTER, J.D.	Canadian Ass. of Oilwell Drilling Contractors
RIVA Walter	The Canmore Mines, Limited
SIEBENS, W.W.	Siebens Oil & Gas Limited
STUART, W.D.	Trans-Canada Pipe Lines Limited
SWANN, R.H.	Canadian Fina Oil Limited

SASKATCHEWAN

DELEGATES

ABERCROMBIE, R.J.	Independent Petroleum Ass. of Canada
BASSERMANN, R.R.	Saskatchewan Mining Association
CAMERON, G.W.	Canadian Petroleum Association
CAWLEY, J.T.	Deputy Minister, Dept. of Mineral Resources
DAVIDSON, Q.C.	Alwinsal Potash Co. Ltd.
DONNELLY, C.W.	Marathon Oil Company
ERBATH, W.	Wintershall Oil of Canada Ltd.
FRANCIS, D.R.	Department of Mineral Resources
FULLER, D.L.	Producers Pipelines Ltd.
GOODWIN, F.L.	Potash Division - Cominco
HURDLE, B.E.	Potash Division - Cominco
LINBERG, R.D.	Int. Minerals & Chemicals Corp.
MODE, D.H.	Department of Mineral Resources
MURRAY, R.C.	Amerada Petroleum Corporation
RICHARDS, R.B.	Saskatchewan Power Corporation
SEIBERT, K.L.	Sybouts Sodium Sulphate Co.
SMITH, D.G.	Department of Mineral Resources
WESTFALL, M.F.	Husky Oil Canada Limited
WOTHERSPOON, J.G.	Department of Mineral Resources

OBSERVERS

BARROLL, A.E.	Mobil Oil Canada Limited
GOZA, J.B.	South Saskatchewan Pipe Line Co.
GREEN, W.H.	Gibson Petroleum Company
LABERGE, A.L.	Imperial Oil Limited
LAWTON, M.D.	Saskatchewan Mining Association
MacNICOL, J.M.	Canadian Petroleum Association
TAYLOR, J.M.	Canadian Pacific Oil and Gas Limited

MANITOBA

DELEGATES

BLOY, H.	The Mining Association of Manitoba Inc.
CLARK, W.D.	Aquitaine Company of Canada Ltd.
COWIE, W.G.	Canadian Pacific Railway Company
LEBEL, J.L.	Chevron Standard Limited
MCCREEDY, J.	The International Nickel Co. of Canada, Ltd.
MCLEOD, Geo.J.	Samedan Oil of Canada, Inc.
PHILLIPS, K.A.	Department of Mines and Natural Resources
RICHARDS, J.S.	Department of Mines and Natural Resources
ROPER, J.S.	Department of Mines and Natural Resources
RUSH, M.W.	Hudson Bay Mining and Smelting Company Limited
TOMKINS, H.A.	Canadian National Railways

ONTARIO

DELEGATES

ANDERSON, J.B.	McIntyre Porcupine Mines Limited
BARBER, J.B.	The Algoma Steel Corporation
BONUS, John	The Mining Association of Canada
BRITTAİN, W.D.	Dept. of Energy & Resources Management
BROWN, L.C.	Department of Mines
COLPITTS, G.L.	Imperial Oil Limited, Chatham
DOUGLASS, D.P.	Deputy Minister, Department of Mines
FRASER, H.J.	Falconbridge Nickel Mines Limited
GIFFEN, J.A.	The Ontario Petroleum Institute
HICKS, H.B.	Consolidated Canadian Faraday
LEE, B.C.	Department of Mines
LORD, R.D.	Rio Algom Mines Limited
MOLLISON, R.D.	Texas Gulf Sulphur Co. Inc.
O'CONNOR, L.G.	Gas and Petroleum Association of Ontario

PERRY, E.A.	Ontario Mining Association
REDPATH, J.B.	Dome Mines Limited
RIDDELL, G.S.	Department of Mines
SCOTT, R.V.	Department of Mines
SHARP, D.A.	Dept. of Energy & Resources Management
SMITH, R.L.	Department of Mines
STOVEL, J.H.	Kerr Addison Mines Ltd.
THOMPSON, J.E.	Department of Mines
TODD, F. Foster	The International Nickel Company of Canada Limited

GUEST

LIVINGSTON Miss J. Department of Mines

QUEBEC

DELEGATES

AUGER, P.E.	Deputy Minister, Department of Natural Resources
BERUBE, Edgar-E.	Quebec Water Board
BOLDUC, J.P.	Department of Natural Resources
BONNEVILLE, J.P.	Quebec Metal Mining Association
CARBONNEAU, C.	Quebec Mining Exploration Company (Soquem)
COOKE, F.G.	Opemiska Copper Mines
GILBERT, J.E.	Director General, Mineral Res., Department of Natural Resources
GODBOUT, André	Department of Industry and Commerce
GRENIER, P.E.	Department of Natural Resources
OLIVIER, C.A.	Department of Natural Resources
PATTERSON, L.J.	Quebec Cartier Mining
POULIOT, Denys	Department of Natural Resources
SIMARD, Paul	Department of Natural Resources
SKIDMORE, W.B.	Department of Natural Resources
TANGUAY, L.G.	Department of Natural Resources
TETU, J.	Department of Natural Resources
THERIAULT, P.	Department of Natural Resources
TREMBLAY, C.	Department of Natural Resources
WHITE, F.T.	McGill University

OBSERVERS

BEAUDET, C.-O.	Department of Natural Resources
BELAND, J.	Montreal University
BERGERON, R.	Department of Natural Resources
BOUCHER, B.	Department of Natural Resources
BOUDREAU, R.-L.	Quebec Cartier Mining
DALLAIRE, J.-R.	Department of Natural Resources
ED, K.M.	Canadian Industries Limited
FILTEAU, P.-A.	Quebec Asbestos Mining Association
HONE, André	Ecole Polytechnique
JUNEAU, Laurier	Ecole Polytechnique
LACASSE, J.-P.	Department of Natural Resources
LAMPRON, D.	Department of Industry and Commerce
LANGLOIS, L.-G.	Quebec Metal Mining Association
LAPORTE, C.	Department of Public Works
LETENDRE, G.	Laval University
MESSEL, J.	Lake Asbestos Corporation
MICHAUD, J.M.	Canadian National
MONETTE, H.	Laval University
PAQUET, R.	Department of Natural Resources
PARADIS, G.	Department of Natural Resources
PERRAULT, Guy	Ecole Polytechnique
POITRAS, Guy	Department of Natural Resources
ROY, R.	Department of Natural Resources
SABOURIN, R.	Laval University
TAPP, G.E.	Canadian Institute of Mining and Metallurgy
TASCHEREAU, M.	Quebec Metal Mining Association
TRUDEL, L.	Department of Natural Resources

GUESTS

CARRIERE, M.	Department of Natural Resources
EMOND, A.	Department of Natural Resources
FOY, Gontran	Department of Natural Resources
FOY, Marc	Department of Natural Resources
GAGNE, M.	Department of Natural Resources
GAGNON, G.	Department of Natural Resources
GIRARD, F.	Department of Natural Resources
GOULET, P.	Department of Natural Resources
HAMEL, J.	Department of Natural Resources
JOBIN, A.	Department of Natural Resources

LANDREVILLE, G.	Department of Natural Resources
LANGVIN, R.	Department of Natural Resources
LAURIN, A.	Department of Natural Resources
LEPAGE, V.	Department of Natural Resources
MAYER, P.	Penarroya (Canada) Ltd.
PARE, M.	Department of Natural Resources
ROULEAU, G.	Department of Natural Resources
VILLENEUVE, G.	Department of Natural Resources
WAQUANT, J.	Department of Natural Resources

NEW BRUNSWICK

DELEGATES

BAKER, R.D.	Heath Steele Mines Limited
BELIVEAU, L.C.	Nigadoo River Mines Limited
BRISSENDEN, W.G.	Brunswick Mining and Smelting Corporation Ltd.
BROAD, W.A.	Department of Natural Resources
BROWN, W.L.	Noranda Exploration Company Ltd.
COUGHLAN, E.K.	Department of Natural Resources
KIRKLAND, A.G.	Brunswick Mining and Smelting Corporation Ltd.
MOORE, G.N.	Cominco Limited
PEAKER, W.	Anaconda American Brass
POTTER, R.R.	Department of Natural Resources
SCOTT, C.E.	Miramichi Lumber Company (Limited)
SEYMOUR, W.L.	Anaconda American Brass
SMITH, J.C.	Asst. Deputy Minister (Mines) Department of Natural Resources
STREETER, J.V.	Avon Coal Company Limited
STREETER, P.	Avon Coal Company Limited
SULLIVAN, C.J.	Kennco Explorations (Canada) Ltd.
WARREN, R.W.	Department of Natural Resources

NOVA SCOTIA

DELEGATES

BOONE, A.E.	Joy Manufacturing Company
BOONE, E.D.	National Gypsum Company

BURCHELL, D.G.	Bras d'Or Coal Mines
DeWOLF, E.G.	Domtar Limited
GOUDGE, M.G.	Department of Mines
HOBSON, M.J.	Acres Ltd.
MacQUARRIES, J.	Canadian Salt Company
MORRIS, R.	Mines Safety Appliances
NOWLAN, J.P.	Deputy Minister, Department of Mines
STUART, G.C.	Hudson Bay Oil & Gas

NEWFOUNDLAND

DELEGATES

ABNOR, J.S.	Pickands Mather and Company
BEAVAN, A.P.	British Newfoundland Expl. Co. Ltd.
GOVER, F.	Deputy Minister (Mines), Dept. of Mines, Agriculture and Resources
HILLIER, H.	Dept. of Mines, Agriculture and Resources
HOWSE, C.K.	Iron Ore Co. of Canada Limited
KIPNIS, N.	Dept. of Mines Agriculture and Resources
MacDONALD, R.D.	Labrador Mining and Expl. Co.Ltd.
McKEE, Walter	Canadian Industries Limited
McKILLOP, J.H.	Dept. of Mines, Agriculture and Resources
PUSHIE, G.F.	Industrial Consultant

FEDERAL GOVERNMENT

OBSERVERS

ANDREWS, G.W.	Dominion Bureau of Statistics
BUCK, W.K.	Department of Energy, Mines and Resources
De BRETIZEL, P.	Penarroya (Canada) Limited
FORTIER, Y.-O.	Department of Energy, Mines and Resources

HARRISON, J.M.	Department of Energy, Mines and Resources
HODGSON, E.C.	Department of Energy, Mines and Resources
HOMULOS, S.	Department of Indian Affairs and Northern Development
HOWLAND, R.D.	National Energy Board
IRWIN, A.B.	Department of Indian Affairs and Northern Development
ISBISTER, C.M.	Deputy Minister, Dept. of Energy, Mines and Resources
LAURENCE, G.C.	Atomic Energy Control Board
LECLERC, G.	Dominion Bureau of Statistics
MacLEOD, J.	Department of Energy, Mines and Resources
MCCRACKEN, G.W.	Dominion Coal Board
TOOMBS, R.	Department of Energy, Mines and Resources
TREVOR, B.J.	Department of Indian Affairs and Northern Development
WOODWARD, H.W.	Department of Indian Affairs and Northern Development

OPENING PLENARY SESSION - MINES MINISTERS' CONFERENCE

MONDAY - SEPTEMBER 16, 1968

HONOURABLE MR. PAUL-E. ALLARD (chairman)

Gentlemen,

It is now my pleasure to declare this 25th Congress open. I want to wish each and every one of you the best of welcome in Quebec, in "La Belle Province". We hope that you will have a very pleasant stay in Quebec, and we also hope that your wives will enjoy the visits we have organized for them so that they are occupied and do not spend too much money in the stores.

Il me fait extrêmement plaisir d'adresser la plus cordiale des bienvenues à tous les délégués et de déclarer officiellement ouvert ce 25 ième Congrès des Ministres des Mines.

Nous saluons avec beaucoup de plaisir la présence du ministre, Monsieur Greene, qui nous a fait l'insigne honneur d'être présent à l'ouverture et qui tout à l'heure aura un message à vous transmettre.

I want to thank each and every minister of the provinces for being here today and I think it is probably the record that we have had. As of now, there are nine ministers present, we have one coming up and this is about the best we have made already.

I want to thank each and every one of you for leaving your very important occupations in each of your respective fields to come here and act as advisers to the Provincial Ministers.

These meetings, that we have each year, are of utmost importance to assure a good administration of our respective mining laws, to work toward a proper coordination in our actions and to help maintaining as much similarity as possible in our procedures while taking into account the particularities and special conditions of each province. Such meetings further help everyone of us to adjust our legislations, by-laws and regulations to the evolution of science and the development of

new techniques in the fields of exploration and mining engineering.

Furthermore, these meetings give us a chance to discuss and study our common problems in relation to whatever action the Federal Government may have in the field of the mineral industry. Following the Annual Meeting, the Provincial Ministers usually present the Federal Minister a brief bearing on questions that have been discussed at the Meeting.

This year, such a brief was presented to the Honourable J:L. Pépin with whom we have discussed several questions of great interest to all the provinces. You know that some major changes have occurred in Ottawa since that time and the Honourable J:L. Pépin has passed the responsibilities of the Ministry of Energy, Mines and Resources to a new man whom you all want to know, and it is the Honourable J.J. Greene.

It is now my pleasure to ask the Honourable Mister Greene to adress this meeting.

EDITOR'S NOTE

The brief presented to the Right Honourable Lester B. Pearson and the Honourable Jean-Luc Pépin by the Provincial Ministers of Mines has been inserted before the address by the Honourable Mr. Greene.

BRIEF PRESENTED
TO
THE RIGHT HONOURABLE LESTER B. PEARSON
AND
THE HONOURABLE JEAN-LUC PÉPIN
WITH RESPECT TO
CERTAIN RECOMMENDATIONS
ARISING FROM
THE TWENTY-FOURTH ANNUAL CONFERENCE
OF THE
PROVINCIAL MINISTERS OF MINES

1967

On behalf of the ministers responsible for provincial mines and minerals we wish to express our sincere and deep appreciation for the opportunity to meet with you and to present the recommendations arising from the Twenty-fourth Annual Conference of Provincial Ministers of Mines held in Regina, Saskatchewan, from September 17 to September 20, 1967.

Our gratitude is extended to the Honourable Jean-Luc Pépin who personally delivered at the opening plenary session of the Twenty-fourth Conference the reply to the brief submitted to the Government of Canada from the Twenty-third Annual Conference of Provincial Ministers of Mines.

The Provincial Ministers of Mines in their deliberations with senior personnel of their departments and through consultation with representatives of the mineral industry and other government departments were able to study problems and policies related to the Canadian mineral industry. The annual conference is a forum where matters of mutual concern to governments and mineral industry may be discussed and deliberated upon with a view to finding some practical solutions. The continuation of these forums is considered desirable and essential for the furthering of the Canadian mineral industry.

Mines and minerals in the provinces under provincial jurisdiction are recognized as provincial responsibilities and the continued expansion of the Canadian economy is in no small measure dependent on the proper development of these provincial resources. The inter-relationship of policies at the provincial and federal levels is of significance to any resources development and we assure you of our desire to promulgate policies that will foster a strong and dynamic mineral industry.

The Provincial Ministers of Mines presented the Minister of Energy, Mines and Resources for Canada, immediately following the conference, with two resolutions that were deemed to be of sufficient importance to require immediate attention. These resolutions are stated here in our brief from the Twenty-fourth Annual conference of Provincial Mines Ministers.

I Carter Commission

Whereas the Royal Commission on Taxation (The Carter Report) has recommended the elimination of the depletion allowance which has been such an important measure

in the development of mining and petroleum industry; in addition, the Commission has recommended the phasing out of the three year tax exemption for new mines, the discontinuance of the exemption for prospectors and their financial backers and other incentive measures, as well as changes in the write-off provisions accorded oil wells, field plants and properties acquisitions; and

Whereas the implementation of such recommendations would inflict grave damage on the mineral industry in Canada by sharply reducing the level of mineral exploration, by the diversion of capital, by preventing the development of mineral deposits which could otherwise be brought into production, with harmful consequences to Canada's export trade, to service and supply industries and to regional and provincial economic growth and development, as well as to the Canadian economy as a whole:

Resolved that the Ministers record with the Federal Government in the strongest terms the deep concern of the mining and petroleum industries with respect to the adverse effects on those industries which adoption of the recommendations contained in the report of the Carter Commission would entail.

II Access to Mineral Resources

It is recommended that the Federal Government vest authority in the portfolio of the Minister of Energy, Mines and Resources to provide grants to facilitate access to mineral resources. This program will permit a mineral developer to apply to the provincial mines minister for approval of an application to the Federal Government for a grant; such application to be forwarded to and negotiated with the Federal Minister by an appropriate provincial minister; the relative financial participation, location, construction and other particulars to be determined

on the basis of the policy of the province concerned.

N.B. - Since forwarding this submission the province of Quebec has withdrawn its support of this recommendation.

The Honourable Mitchell Sharp, Minister of Finance, acknowledged on behalf of the Government of Canada receipt of these resolutions by letter dated October 2, 1967.

We are indeed heartened by Mr. Sharp's reply that the Federal Government will be giving very careful consideration to the views of the Provincial Ministers concerning the two resolutions.

The Provincial Ministers of Mines with their Deputy Ministers received representations from certain delegations and considered reports submitted by six standing committees. Our recommendations arising from these deliberations and involving either the approval, co-operation or participation by the Federal Government and the provinces are respectfully submitted to you.

MINING OPERATIONS

A strong brief in respect to the recommendations of the Royal Commission on Taxation (The Carter Report) was received by the Ministers and transmitted to the Minister of Energy, Mines and Resources. This action was taken without delay because a retrenchment in mineral development is already being felt as a result of the mineral industry's concern over the possible implementation of certain recommendations in the report.

EXPLORATION AND DEVELOPMENT

Access to mineral resources in the remote areas of Canada is of concern to governments and the mineral industry. The financial burden is often great and, if mines and minerals

are to be developed, means to finance the facilities must be provided.

In times of national emergency certain matters of provincial jurisdiction should be vested in a common authority to provide uniformity of approach for the common good and in the public interest this is a principle that we all support. Concern is expressed, however, that often these emergency measures result in the dilution or loss of provincial authority when the emergency has ceased to exist. The Provincial Ministers of Mines adopted the following resolution:

"WHEREAS, pursuant to the division of legislation and executive jurisdiction set out in The British North America Act, matters relating to the exploration, mining and production of natural resources, fall under provincial jurisdiction;

AND WHEREAS the jurisdiction over uranium and thorium was assumed by the Federal Government under wartime emergency conditions;

AND WHEREAS the wartime emergency no longer exists;

NOW THEREFORE be it resolved that the Mines Ministers of this Conference request the Government of Canada to restore such provincial jurisdiction to the provinces in respect to uranium and thorium, except in the matters of international sales and exports thereof."

Communications during exploration and development of mines and minerals in the northern parts and remote areas of Canada have been identified as a problem. The Provincial Ministers have approved the establishment of a committee to study the problems of communications facing the mining and petroleum industry in the remote areas of Canada. It is proposed that the membership of this committee be composed of representatives of the Committee on Exploration and Development, the Committee on Petroleum and Natural Gas and the Federal Government.

ROYALTIES, TAXATION AND TARIFFS

The Royal Commission on Taxation has previously been stated herein and the recommendation made thereto.

Two resolutions were submitted to the Provinces Mines Ministers with which they concur:

- (1) RESOLVED that the Ministers recommend to the Federal Government that Part XII, section 1201 (1) (IV), of the Income Tax Regulations be amended to grant the benefit of the depletion allowance to the operators of sodium sulphate deposits;
- (2) RESOLVED that the Ministers commend the Federal Government for its announced intention to extend the Emergency Gold Mining Assistance Act beyond the present date of expiry on December 31, 1967; and that the Ministers recommend to the Federal Government:
 - (a) That the extension be for a period of four years to permit the orderly planning of mining programs;
 - (b) that an increase be made in the rate of assistance in recognition of rising costs of production; and
 - (c) that the Minister of Energy, Mines and Resources be commended for his support in the past in the maintenance of the gold mining assistance policy.

COAL

The following resolution was received by the Provincial Ministers of Mines with which they concur:

WHEREAS the Government of Canada has enacted legislation providing subvention assistance to the coal industry of Canada; and

WHEREAS this policy has proven over the years to have provided overall vital support for the industry;

THEREFORE BE IT RESOLVED that the Provincial Ministers of Mines here assembled transmit to the Government of Canada, including the Dominion Coal Board, the sincere thanks and grateful appreciation of all concerned with the Canadian coal industry and its dependent communities.

PETROLEUM AND NATURAL GAS

Communication in remote areas has been identified as a problem facing all segments of the petroleum industry during the exploration and early development stages. This problem will be examined by the joint committee referred to under the heading "Exploration and Development".

EDUCATION AND MANPOWER

We wish to report that the survey on manpower in the mineral industry has been completed. Financial assistance has been extended to support the publishing of the report "Manpower Requirements of the Canadian Mineral Industry."

All of which is respectfully submitted.

April 19, 1968

Alexander C. Cameron,
Chairman,
24th Annual Conference,
Provincial Ministers of Mines.

REPLY TO THE BRIEF SUBMITTED TO THE GOVERNMENT

OF CANADA FOLLOWING THE 24th ANNUAL

CONFERENCE OF THE PROVINCIAL MINISTERS OF MINES

by

THE HONOURABLE J.J. GREENE

MINISTER OF ENERGY, MINES AND RESOURCES

I am pleased on this occasion to present the Federal government reply to the Brief submitted by Provincial Ministers of Mines following last year's Conference in Regina, Saskatchewan. I am most appreciative of the opportunity to participate in your Annual Conference, particularly because this marks my first attendance at this important annual meeting since I assumed my new portfolio of Minister of Energy, Mines and Resources. I have had an opportunity of examining the objectives of your Annual Conference and of learning of its extensive achievements during the past twenty-five years. This is an ideal forum for the consideration of mineral policy matters of interprovincial and national concern and I assure you that the recommendations within the purview of the federal government which arise from this year's Conference will be given careful attention by the federal cabinet, as has been the practice in previous years.

I would now like to comment on the resolutions and other items of business pertaining to last year's Conference when my predecessor, The Honourable Jean-Luc Pépin, represented the federal government.

COMMITTEE NO. 1

Committee on Problems Relating to Mining Operations

There was one item on the Agenda of Committee No. 1 at your Conference last year which was of particular interest and concern to government at the provincial and federal levels. This was the matter of radiation hazards in mines. At the federal level, we were pleased to make Dr. C.G. Stewart, Director of the Medical Division of Atomic Energy of Canada Limited, available to the Committee. Dr. Stewart is one of the most knowledgeable Canadians in a field which still has many unknowns. In the interests of a safe and growing mineral industry, the federal and provincial governments must give greater attention to the problem of radiation. I would hope that it is a field in which we can continue to work together for the common good of the Canadian mineral industry and its employees.

On another matter, the federal government was pleased to make a financial contribution of \$2,000 towards sponsoring a Canadian mine rescue team in the World Series of Safety Competition which was held in Louisville, Kentucky in October of last year. I understand that our Canadian team, although it did not win, made a very creditable showing.

COMMITTEE NO.2

Committee on Problems Relating to Exploration and Development

I note that this Committee discussed the federal-provincial airborne electro-magnetic survey program and recommended that the research undertaken in the field of electromagnetic surveys by the federal government be continued, in co-operation with the Provinces, with the results to be discussed at this Conference. We are most pleased to participate in this experimental project and I am advised by our people in the Geological Survey of Canada that good progress is being made in this field of research.

The other item of particular interest in this Committee's work was the subject of a resolution approved by the Provincial Mines Ministers recommending that the federal government provide grants to facilitate access to mineral resources. I will comment on this resolution along with the other two resolutions along with the other two resolutions shortly.

COMMITTEE NO. 3

Committee on Royalties, Taxation and Tariffs

A resolution concerning the report of the Royal Commission on Taxation (Carter Report) originated in Committee No.3 and was approved by the Provincial Mines Ministers. I shall be pleased to comment on it at the conclusion of these summary remarks.

Depletion Allowance for Sodium Sulphate Deposits. The Mines Ministers recommended that the Federal Income Tax Regulations be amended to grant the benefit of percentage depletion allowance to the operators of sodium sulphate deposits. This is a matter which is receiving consideration in the general study of possible income tax reform. A specific reply to the recommendation will be possible after the framework of the proposed tax reforms has been determined.

Emergency Gold Mining Assistance Act. During the Conference in Regina the Honourable Jean-Luc Pepin stated that it was the intention of the federal government to extend the operation of the Act beyond December 31, 1967 and I am pleased to receive your commendation on this decision. As you know the Act was extended on December 21, 1967 for a further period of three years to the end of 1970.

The Mines Ministers recommended that the extension be for a period of four years and that the level of assistance be raised. Full consideration was given to these recommendations. It was decided that a review of the position of the gold mines and of their dependent communities was desirable within a three-year period in view of rapidly changing circumstances.

No change was made in the level of assistance since an upward revision which would have any significant effect at this time would be very costly indeed.

The ultimate effects on the Canadian gold mining industry of recent developments in the field of international monetary affairs cannot be foreseen. However, the present policy

of the federal government is to continue payment of assistance under the Act with respect to gold sold to the Royal Canadian Mint by operators of gold mines.

Uniformity on Allowances and Disallowances under the Several Mining Tax Acts in Canada. This is primarily a provincial matter, of course, since it relates to rules under which provincial governments levy royalties or mining taxes on the development of mineral resources within their boundaries.

However, I believe that further consideration of the matter would be warranted since increased uniformity would be a step toward solving the problem of determining the allowable deduction of provincial mining taxes from income taxable under the federal Income Tax Act.

Statistics on Capital Expenditures Related to the Cost of Finding and Bringing Mines into Production. The Agenda of the Regina Conference included a review of a new simplified form for collection of statistics on capital expenditures related to the cost of finding and bringing mines into production. I understand that approval was given for the use of this form and I am advised that the Dominion Bureau of Statistics initiated the survey early this year, in co-operation with the provinces. It is expected that 1967 survey data will be available later this year.

COMMITTEE NO 4

Committee on Coal

Since last September's meeting in Regina, further progress has been made in developing a Canadian coal policy more in line with current requirements and problems. Following the master Agreement between the federal government and Nova Scotia on Nova Scotia coal policy and the subsequent establishment of the Cape Breton Development Corporation, a supplementary Agreement, reached in May 1968, provides for the phasing out of the McBean Mine located in Pictou County on the mainland of Nova Scotia. An Agreement has also been reached between the federal government and New Brunswick on a new policy for the Minto Coalfield. Under the terms of this Agreement, New Brunswick is establishing an overall management plan to rationalize coal production in the Minto Coalfield. The federal government will assist the Province in attaining the objectives described in the

Agreement by means of capital grants totalling nearly \$20,000,000 payable over five years; these grants will replace the federal coal subvention system which has been in operation for nearly forty years.

In western Canada, arrangements either have or are being made with the three coal producers in the Foothills of the Rocky Mountains in Alberta and British Columbia for the phasing out of the federal coal subvention program by March 31, 1971, at which time these operations will be on a firm commercial basis.

COMMITTEE NO. 5

Committee on Petroleum and Natural Gas

This Committee continues from year to year its excellent technical program. I note with particular approval the recommendation that a working committee be formed consisting jointly of members of Committee No. 2, Committee No. 5 and representatives of the federal government to study communications problems facing the mining and petroleum industry in remote areas at the time of exploration and development.

COMMITTEE NO. 6

Committee on Education and Manpower

I understand that one of the principal items on the Agenda of Committee No. 6 related to the Report: "Manpower Requirements of the Canadian Mineral Industry" which the General Committee on Education, of the CIM prepared in collaboration with Provincial Ministers of Mines. This report has now been completed in final form and distributed by Provincial Ministers. The report demonstrated quite clearly the present and future demand situation in the Canadian Mineral Industry.

Another item on the Agenda of Committee No. 6 related to the Frontier Package Program of the CBC. Provincial Ministers will be pleased to know that this particular program, which brings television to remote mining communities which are outside the range of the CBC national television network, is progressing on schedule as planned. The program should be of concrete value in attracting and retaining labour in remote mining communities.

I would now like to give particular attention to three principal resolutions arising from the 1967 Annual Conference of Provincial Mines Ministers.

Access to Mineral Resources

One of these resolutions called for federal government grants to facilitate access to mineral resources.

Access to mineral resources was assisted in a federal program of mine access roads initiated in the early 1930's. When the Roads to Resources Program was established by the federal government in 1953, assistance to mines access roads was made available through that program. The Roads to Resources Program is now complete for eight provinces and all funds have been committed for the remaining two provinces. Moreover, as part of the government's withdrawal from shared-cost programs, the Minister of Finance on September 14, 1966 informed the Federal-Provincial Tax Structural Committee of the federal Government's plan to discontinue three shared-cost programs at their expiry dates: the forestry agreements, agricultural line assistance, and roads to resources. Thus, with the end of the Roads to Resources Program, there is no provision for federal assistance for access to mineral resources by road within the provinces.

The federal government does, of course, assist in the development of air transportation through the establishment of air-strips and communication facilities. Many new mineral areas have been given access to transportation by railway building programs of the C.N.R.; in fact, almost all of the new line construction since the mid-1940's has been related to mineral development. Transportation by water is assisted through the federal government's program of dock construction and harbour installation.

In the national interest of developing Canada's north, the federal government instituted a new, long range program of northern roads construction in 1965. This program provides for an average annual expenditure of \$10 million over a ten-year period to assist in the development of the resources of the Yukon and the Northwest Territories.

At this time, the federal government has no further plans for assisting with access to mineral resources in the provinces. The matter of incentives to the mineral industry is still under consideration by the Minister of Finance as a result of the recommendations of the Royal Commission on Taxation and,

consequently, it would not be appropriate now for me to make a statement concerning the future of mineral resources access incentives. However, all such matters that relate to the remoteness of our mineral resources, including manpower and mining community problems as well as transportation, are of much concern to me. I can assure you that they will be given full consideration as the federal government's mineral policy evolves and is restructured to meet national policy goals for the industry and the economy as a whole.

Control Over Uranium and Thorium

The next major resolution concerned the nature of control over uranium and thorium in Canada and requested more complete provincial jurisdiction except in matters of international sales and export.

It seems to me it is appropriate and desirable that, "except in matters related to national security and foreign policy, uranium mines should be subject to the same rules as those which the provinces exercise over other mines". It is the wish and intention of the federal government that the provinces continue to be able to apply such controls.

Before I discuss further the role of the provinces in regard to uranium mines, may I explain the interests and obligations of the federal government in our uranium resources from the point of view of security and foreign relations. In 1943 the federal government acquired possession of the only existing Canadian uranium mine as a wartime measure. After the war ended, it was decided that it was unnecessary to continue to preclude private ownership. However, suitable controls are needed even in peace time because the federal government must be able to act quickly in emergency to take whatever measures may be required for our national security. In particular, it was realized that control of atomic energy materials and facilities by the federal government was necessary if Canada was to fulfil its commitments in any future international organization or arrangements designed to reduce the possibility of atomic war, as contemplated by the United Nations' Atomic Energy Commission. Consequently, in 1946, by the Atomic Energy Control Act, the federal government secured the necessary powers of control over atomic energy materials, equipment and information of strategic importance.

Early that year Canada had expressed support in principle of the Baruch Plan of international control of atomic energy to ensure its use for peaceful purposes only. Russian

support would be essential for its success, but Russia rejected the Baruch Plan and it is now almost forgotten. Since then, however, most of the nations of the world, by endorsing the Charter of the International Atomic Energy Agency, have subscribed to the principle of international controls, and many nations, including Canada, have accepted the application of foreign inspection to specific atomic energy facilities to prevent clandestine diversion of atomic materials for military purposes.

The successful negotiation of the Non-Proliferation Treaty, which Canada has signed, was recently announced. This treaty emphasizes the view of nations that atomic energy activities must be strictly controlled to ensure that atomic energy materials are not diverted for military purposes. Under the treaty, Canada's atomic energy activities will be subject to international inspection. Although it is now generally agreed that such inspection should not extend to actual mining and milling operations, it will extend to the shipping or other distribution of mill products. A federal control system over such activities in Canada is therefore essential not only to satisfy the international inspectorate but also to minimize any inconvenience to Canadian operators from such inspection.

The Atomic Energy Control Act, giving the federal government jurisdiction in matters relating to national security and foreign policy, in no way hinders or limits provisions to ensure that the uranium and thorium mines conform to the same rules as other mines which are under provincial jurisdiction. Thus uranium and thorium mines are effectively made subject to provincial control in all respects unrelated to security and foreign policy, as I mentioned earlier. Any exploration or mining permit issued by the Atomic Energy Control Board

- (a) is conditional upon the licensee having obtained from the province concerned the necessary proprietary rights to the property in question; and
- (b) invokes, subject to the Atomic Energy Control Regulations, all provincial or territorial regulations or requirements which would otherwise be applicable but for the passage of the Atomic Energy Control Act.

Even where only radiation hazards are concerned (which involves not only the health and safety of the miners but also the members of the public which might be affected by their operations),

the Atomic Energy Control Board has, wherever possible, appointed provincial officials as inspectors under the health and safety sections of its regulations.

With regard to the information obtained from the Board's licensing program, the Board has recently required each licensee to submit an additional copy of his periodic reports and this will be forwarded to the provincial department concerned. The information contained therein should not be made public without the consent of the licensee but, should the licensee terminate his exploration or mining activities and the property reverts to the Crown, the release of information on the property would then be a matter for determination by the provincial or territorial department concerned.

I understand also that The Honourable Jean-Luc Pépin indicated to the delegation of Ministers which presented this resolution to him in May of this year that federal authorities would welcome discussions with their provincial counterparts as to the wording and reporting requirements of the exploration and mining permits to ensure that the needs of both the federal and provincial authorities are met and that there be no needless duplication. Since that time, suggestions have come from some mining companies that the Board should require the submission of even more information from licensees so federal authorities could issue informative periodic bulletins on progress in uranium exploration and mining. This proposal will be discussed with licensees and with provincial authorities.

Report of the Royal Commission on Taxation (Carter Commission)

At your Annual Conference, held in Regina last September, a resolution was passed registering deep concern about the adverse effects which the adoption of the recommendations of the Carter Commission could have on the mining and petroleum industries.

As Minister of Energy, Mines and Resources, I am deeply aware of the contribution which the mineral resource industries have made to the growth of the provinces and of Canada as a whole, and the need to avoid discouraging further development of our resources.

The federal government has not yet taken a final position on its policy concerning tax reform. My colleague,

Mr. Benson, the Minister of Finance, has stated that he contemplates the introduction of measures of tax reform during the life of the present Parliament. He has also stated that he does not expect that all of the Carter Commission's recommendations will be incorporated in the proposals for tax reform placed before Parliament.

The federal government has conducted exhaustive studies into the effects of the changes in Canadian tax law which were proposed by the Carter Commission and has carefully examined the alternative courses. As you know, associations representing the mineral industry and individual mineral companies took full advantage of the invitation to submit their views to the federal government on the Carter proposals. The weight of paper in those submissions at least rivalled that of the original report. Consequently, the government is in no doubt concerning the views held by the mineral industry with respect to the Carter Commission recommendations.

The Minister of Finance has stated that he proposes to present, in the form of a draft tax bill, those major tax reforms upon which the government decides. Such a bill would not necessarily be a part of a Budget Speech presentation. The draft bill would be referred to a Parliamentary Committee which would study the legislation and invite comment from the public and from provincial governments.

It is clear, therefore, that all interested parties will have a further opportunity to present their views to the federal government with respect to proposed changes in our tax laws which specifically affect the mining and petroleum industries.

* * *

Before concluding my comments relative to last year's proceedings, I would like to bring to the attention of the Conference a recommendation that has been put forward by the National Advisory Committee on Research in the Geological Sciences for the establishment of a Canadian Geoscience Data Institute.

Canadian Geoscience Data Institute

The Provincial Mines Ministers have asked for a report on the work of the ad hoc Committee of the National Advisory

Committee on Research in the Geological Sciences and its efforts to develop a national system for the storage and retrieval of geological data in Canada. The ad hoc Committee's final report, published in 1967, proposed the establishment of such a national system. On acceptance of the ad hoc Committee's report, a new subcommittee was immediately set up to implement the report's recommendations.

Following careful study of the ad hoc Committee's recommendations, this subcommittee now proposes the establishment of an independent body to be called the Canadian Geoscience Data Institute. The objectives of this Institute will be directed toward the advancement and increased effectiveness of mineral exploration in Canada. This will be accomplished by the development of a national network of computer-processable geoscience data files (the National System); the operation of a National Index of geoscience data; the development of standards for data; and the co-ordination of computer applications. The subcommittee considers that through the activities of this Institute, data on the mineral resources of Canada will be made available in greater volumes, in readily accessible and usable forms, and at lower costs. As a result, the efficiency of mineral exploration programs in each province will be increased, and resource development will be stimulated.

The proposed Institute would be financed in its initial stages by contributions shared equally by the Government of Canada and the provinces, each province contributing an amount proportional to its share of Canadian mineral production. The proposed Institute would have a nine-man Board of Directors, an Advisory Board representing governments, universities and industry and a staff comprising an Institute Director and Chief Indexer, with secretarial assistance.

Copies of the proposal for the establishment of the Geoscience Institute are available to all of you at this Conference. The formal proposal presents the concept of the Institute including its objectives and organization; the benefits to be derived from its work; and its budget. I commend it for your consideration.

In concluding my comments, I would like to wish you much success in your deliberations here in Quebec City at this your twenty-fifth Annual Conference. I will look forward to meeting with Provincial Mines Ministers at a later date when recommendations arising from this Conference are presented to the federal government and wish to assure you that any recommendations

that are directed for the attention of the federal government will receive careful consideration. I look upon this Conference as an excellent means of encouraging increased federal-provincial co-operation in mineral policy matters and consequently will personally give a high priority to matters of national interest which arise from your proceedings this year.

* * * *

In addition to my formal reply to the Brief submitted by you to the Government of Canada, I am most pleased to have this opportunity to make a few observations on the mineral industry's progress and accomplishments. These observations come at the beginning of my new responsibilities as federal Minister of Energy, Mines and Resources, against the background of a long-time personal interest in mineral trends and developments.

Mineral Industry Highlights in 1968

One cannot help but be greatly impressed by the dynamic growth of the Canadian mineral industry and its important role in the economy. The dynamic growth is evidenced by its average annual increase in real output of almost nine per cent in the past 20 years compared with slightly more than four per cent for the country's industrial complex as a whole. The industry has done well in productivity increases too. For example, the increase per unit of labour input for 1967 was double the increase for the manufacturing sector. The industry's important role is seen in its 30 per cent contribution to Canada's merchandise exports and in the fact that 15 per cent of the country's total capital investment is directed into mineral industry facilities, with additional large amounts going into the infrastructure investment generated when new mineral areas and townsites are opened up.

Even the briefest of panoramic sweeps across the country conveys a dramatic picture of new and expanding activity in opening up mineral resources throughout Canada which now can claim to have the world's third largest diversified mineral producing economy. Let me name but a few of the main elements in this picture of dynamic growth and change.

In the far north, there is widespread oil search even onto the Arctic Islands; a revival of mining in the Yukon,

particularly in lead, zinc and asbestos; copper resource exploration in the Coppermine area of the Northwest Territories; and continuing expansion at Pine Point on Great Slave Lake.

In western Canada, one could point to a number of impressive activities including copper developments in British Columbia; the opening up of large markets for British Columbia and Alberta coal; the continuing expansion of Alberta oil and gas production after 20 years of phenomenal growth, and now the assurance of an even greater resource potential with the commencement of Athabasca oil sands production; the almost meteoric rise of Saskatchewan potash production to a position of world leadership; and the impressive progress in developing the base metal resources of northern Manitoba.

In eastern Canada, we find new iron ore mine and pellet plant facilities in northwestern Ontario, a reactivation of uranium mining in the Elliot Lake district, and large expansion of producing operations at Sudbury. In Quebec, new copper developments in the Eastern Townships and in the Gaspé area are noteworthy, and the expansion of iron ore loading facilities for deep-water shipping at Sept Iles is illustrative of the attention being given to economies in mineral transportation. In Nova Scotia and New Brunswick, a start has been made in rationalizing the coal industry and in preparing for new economic development. Iron ore and other mineral developments have greatly diversified the economy of Newfoundland and Labrador and rank high in the province's growth prospects for the future.

Suggestion for Provincial Mineral Emblems

On a more personal note: this brief panoramic picture of mineral activity would not be complete without my complimenting the Government of British Columbia for having this year adopted the mineral jade as an official provincial mineral emblem, along with the Pacific Dogwood which has been its provincial flower emblem for many years. It seems to me, as a newly appointed Minister of Mines, that the example of British Columbia is worthy of consideration by all Provinces. As a means of emphasizing the important role of minerals in the development of Canada and the well-being of her people, it might indeed be fitting to give minerals some form of heraldic recognition. For my part, I would be pleased to discuss with my colleague, The Honourable Jean Chrétien, the possibility of adopting official mineral emblems for the Territories.

The selection of a mineral emblem might be more difficult for some Provinces than for others, but consultation with the mineral industry, and with the growing fraternity of "rock hounds", would unquestionably bring forward numerous well-supported and imaginative suggestions. As a start, the Geological Survey of Canada has selected a number of minerals which cover a wide range of colour and form and which indicate the variety available for emblematic purposes.

Current EMR Mineral Research

Let me now say a word regarding my Department's participation in the scientific, technological, and economic effort required to help the mineral industry increase its contribution to the country's industrial expansion.

In our Mines Branch, a major part of our effort continues to be directed to assisting industry in the solution of specific operating problems in the extraction and processing of minerals. For instance, our Mining Research Centre has as its primary objective the increased application by industry of new scientific and engineering knowledge to increase the safety of operations, decrease costs, and avoid the waste of resources. Towards this end, the Centre's activities extend across Canada and include fluorspar mining in Newfoundland, coal mining in Nova Scotia, asbestos mining in Quebec, uranium and gold mining in Ontario, potash mining in Saskatchewan and coal mining in Alberta and British Columbia.

Similar, our activities in mineral processing relate in large part to assisting mining companies in the design of their mill flow sheets - an area in which the Mines Branch has made substantial contributions throughout its 61 year history. Recent investigations have included assistance in the development of suitable extraction processes for a nickel project in Ontario and a tantalum project in Manitoba. Looking more to the future, the Mines Branch is continuing its studies of the leaching of copper ores and concentrates, particularly by bacterially-produced solutions.

Canada's prominent position in world trade of minerals and metals has made apparent the need for improved methods of analysis of these materials and for the development of standards acceptable to buyers and sellers on an international basis. The Mines Branch is active in this field, participating on behalf of Canada in a number of international standardization and analytical technique programs.

In the solid fuels field, we have a number of on-going projects. For example, we are continuing our studies of the application of metallurgical grades of western Canadian coals in the Japanese and western United States markets. Already the material assistance which we have been able to provide through our pilot plant coking facilities has played a substantial developmental role in the recent conclusion of a number of large, long term coal sales contracts with the Japanese steel industry.

During the past year, my Department took a very important step in improving the effectiveness of the country's research and development resources for the benefit of the mining industry by creating the "National Advisory Committee on Mining and Metallurgical Research". The purpose of this committee is threefold:

- (1) to examine and report to me on the state of mining and metallurgical research in Canada - by which we can identify needs for increased effort and make recommendations on priorities to aid intelligent planning;
- (2) to co-ordinate the research activities of the Federal Government with other organizations; and
- (3) to stimulate and sponsor research programs at our universities to ensure that the university resources for research are sufficient to provide well-trained scientists and engineers to meet the needs of all sectors in the development of our mineral resources.

We have had a splendid response from leaders in industry, the universities and the provincial governments who have agreed to serve on this committee. It is with high expectations that we now look forward to this committee's work in seeing that science and technology contribute in full to the economic health of our mineral economy.

A few remarks concerning the extent, variety, and current status of Geological Survey activities may be of interest since most of these are of immediate concern to Provincial mines departments and the mining industry that they serve.

As a result of the high priority given reconnaissance investigations over the past 15 years, about 85 per cent of Canada has now been studied in this way. This preliminary task will be completed within a few years giving for the first time a reliable picture of the major geological features of all parts of Canada. The data of the many resulting reconnaissance maps and reports are being reviewed, synthesized, and assessed to give this up-to-date picture. As a part of this stock-taking process the Geological Survey now has in the publication process a fifth and completely revised edition of its comprehensive report "Geology and Economic Minerals of Canada". It will be accompanied by six completely new national maps, each at a scale of 1:5,000,000, portraying geology, tectonics, mineral deposits, geochronology, magnetic anomalies and glacial features.

A good example of Survey work intended to provide more direct and immediate guides to the mining industry might be the uranium program, started a year or so ago in anticipation of the current uranium search. A major report has been released on the Beaverlodge area. Another report has summarized geological environments favourable for uranium in Canada including the Colorado plateau type in the western Cordillera. Coal specialists are studying the uranium content of Tertiary coals in western Canada. Geochemical exploration techniques are being developed using radon gas in streams and lakes as a reconnaissance method, and uranium in soils and waters for closer prospecting. Much research has gone into the development of a very sensitive airborne gamma-ray spectrometer. Current efforts are aimed at determining the capabilities and limitations of the device for outlining uranium-bearing sedimentary provinces by reconnaissance flights, for detailed prospecting, for aiding general geological mapping, and for searching for base metal deposits.

Another item of immediate and direct interest to the prospecting fraternity will be the revision of the Survey's best seller, "Prospecting in Canada". This report has been about 20 per cent re-written and the resulting thoroughly up-dated manuscript forwarded for editing.

You will recall that at the Mines Ministers' Conference two years ago in Saint-John, New Brunswick, the Geological Survey was asked to study the various airborne electromagnetic methods and determine their usefulness as methods of supplementing more conventional methods of geological mapping. The work done to date involves the Barringer INPUT system, AFMAG, and VLF (very low frequency) transmissions. Some of the field trials and much of the evaluation is still in progress and final reports are not yet possible. The INPUT equipment has been modified so that resistivity contour maps can be produced and test surveys made

near Ottawa, in the Manitoba Department of Mines 'Project Pioneer' area, at Winkler in Manitoba, and near Drumheller in co-operation with the Research Council of Alberta. AFMAG surveys were recently completed in the upper Nelson River area of Manitoba and near Uranium City in Saskatchewan. Investigations of the usefulness for mapping purposes of the very low frequency transmissions intended for communication with submarines is still in progress.

The above examples concern only a very few of the several hundred research projects in hand by the Geological Survey. Because of the number involved, and the need for co-operation and co-ordination between the Survey and the respective Provincial mines departments, a substantial continuing effort is made to maintain a mutual exchange of planned and actual scientific programs through correspondence, visits, and meetings.

In our Mineral Resources Division, a considerable part of its effort is devoted to the conduct of studies and the provision of advice on mineral policy matters - matters such as road, rail, water, air and power infrastructure related to specific mineral projects; mineral tariffs; mineral taxation and subsidy programs; regional studies involving minerals; international developments affecting Canadian minerals - in fact most mineral problems of a regional, national or international character.

Research and Productivity

I am increasingly impressed by the need for a large and progressive research and development (R & D) program in support of a complex technological industry such as the mineral industry, if it is to grow at a rate appropriate to its resource potential. I would stress, too, that more than research is required; there must be a willingness to innovate so that the results of the R & D effort can be put into practice and the benefits of productivity gains realized.

The Fifth Annual Review of the Economic Council, recently issued, has some important observations to make about industrial research in Canada including the fact that our R & D effort in 1965 was only the equivalent of 1.3 per cent of our gross national product compared to a 3.5 per cent relationship in the United States. I was pleased to note that mineral-related

research constituted 17 per cent of total research outlays made by industry in Canada compared with five per cent in the United States. Still, having regard to the importance of a thriving mineral industry to economic growth in this country, I would hope that even this favourable performance would be enhanced in the future.

While acknowledging the benefits of imported technology, we must guard against too heavy a reliance on it and direct attention to strengthening our own research and innovation capabilities. The industry's problem of attracting and holding scientific and technical manpower results, in part, from too little attention in the past to the establishment of an adequate basic, applied and development research program in industry and government.

Let me conclude by referring to the Economic Council's findings regarding science, technology and the economy, as I believe they are most relevant to the planning obligations of administrators in industry and government, if the mineral industry is to keep pace in a highly competitive world mineral economy.

The Council recommends that innovation - constituting the crucial stages beyond R & D - be given greater recognition in science policy. Related to this, the capacity of Canadian business management to undertake successful innovation should be strengthened. More effective means should be developed to harness information on science, technology and innovation, both from abroad and from Canadian sources. Canada's indigenous scientific and technological effort should be strengthened, particularly in industry. Support for the social sciences should be greatly increased and there should be regard to the need for more interrelated activities across the whole spectrum of research, including the natural sciences, the social sciences, and the humanities.

It seems to be that there is an important message in the Council's recommendations for everyone having the responsibility of helping to meet the challenge of growth and change in the mineral economy.

I would like to wish you much success in the deliberations of this, your twenty-fifth Annual Conference of Provincial Mines Ministers. I am sure that you will continue to make a significant contribution to the establishment of an environment that will promote the type and scale of research and innovation that is required by our dynamic mineral economy if it is to thrive and make its maximum contribution to Canadian economic development.

Honourable Allard:

Je tiens à remercier vivement l'honorable M. Greene de son message et d'avoir accepté d'être ici ce matin malgré les travaux de la session qui doivent reprendre cet après-midi.

Mr. Greene, you have made a very good impression on the delegates to this Conference and for this we want to thank you very much. The review of the mining situation in Canada which you have given us was most interesting and we also want to thank you for this exposé. Furthermore, we hope that the understanding and the co-operation that you have offered us and that we have received to this moment from your government will continue and I feel confident that whenever problems arise we shall be able to dialogue and understand each other.

The mining industry, as you have said clearly, is one of the principal bases of our economy and, along with the Government of Canada, I know that each and every province wants to do its best to make Canada and all its provinces a forever better world to live in.

Encore une fois merci infiniment et nous espérons avoir l'occasion, monsieur le ministre, de vous rencontrer à chaque occasion où des problèmes communs pourront être discutés.

And now, gentlemen, it is my pleasure to introduce our guest speaker, Mr. Marcel Bélanger, who has kindly accepted to address us on one of the most discussed present-day topics. Mr. Bélanger is an economist and a University professor of great renown. He has been acting as adviser to numerous heads of government on economic and fiscal matters over a period of years. He is the chief responsible for the preparation of

the report of the Tax Structure Committee for the Government of Quebec. Mr. Bélanger is also well acquainted with everyday's problems in the field of economics due to his association with private enterprise in the normal practice of his profession as a chartered accountant.

And on the side, Mr. Bélanger has a few hobbies. He is mixed up in the mining business as director of many Canadian companies, some of them as well known to you as Lake Dufault Mines Ltd. and Eldorado Nuclear Ltd.

The subject of Mr. Bélanger's Address is: "The Canadian Economy" - "L'Economie Canadienne".

Speech delivered by Mr. Marcel Bélanger, Economic Consultant and professor of Economics at the MBA programme of Laval University

THE CANADIAN ECONOMY

I am a little surprised that you asked an economist at this opening session, having in mind what Clémenceau once said about economists. According to this great Frenchman, there are three ways to get broke: the fastest, gambling; the most pleasant, women; and the surest, consulting economists.

In any event, I thank you, Mr. Minister, for your introductory remarks and I hope that the nice things you have just said about me will cross this hall and that their echo will reach your colleague, the Minister of Finance, before I present my next bill for the work I have done recently for him.

As mentioned on the agenda, I would like to say a few words about the Canadian Economy. Unfortunately, I have not prepared a text. In very simple terms, I will describe the main trends of the economy as I can see them. This will constitute the first part of my remarks. In the second, I will try to identify some of the problems which we have to face not only in the short run but also in the long run.

THE ECONOMIC OUTLOOKS

As you all know, our economy has gone through a very long period of prosperity, in fact, the longest uninterrupted prosperity in the whole history of Canada. For instance, the Gross National Product rose from \$40 billion in 1962 to \$62 billion in 1967 for an average annual increase of almost 9% - 3.5% in prices and 5.5% in real terms.

Many factors are responsible for this great expansion. In the first place, consumers expenditures have risen steadily, the average annual rate of increase being 7.8% - 5.3% in real terms and 3.5% in price increases. The per capita increase in consumers expenditures in real terms has been 3.3% per annum. This shows a great increase in our standard of living.

Capital expenditures have increased at a much more rapid rate: 15% per annum from 1962 to 1967 inclusive. This is a sign of a booming economy.

Government expenditures on goods and services increased from \$7 billion in 1962 to \$12.5 billion in 1967. Public expenditures have certainly contributed to a very large extent to the rapid rate of growth of our economy. It has, however, created very serious problems. Our governments had to find new money, either through increase in taxes or through heavier borrowing. Taxpayers never like increases in taxes, and heavier public borrowing contributed to the difficulties encountered in the financial markets.

Lastly, our balance of payments improved during that period. In 1962, our deficit on current accounts was above a billion dollars; in 1967, it was below half a billion dollars. This narrowing of our deficit on current accounts played a significant role in the development of our economy during that period. This long period of rapid growth has been interrupted to a certain extent in 1967. We had a pause in our economic growth, as our politicians like to call it - they hate the word "recession". Our Gross National Product increased by 6.8% in money terms, but by only 2.8% in real terms, prices increasing by 4%. This is far from a spectacular achievement but the pause did not develop into a recession, thanks mostly to the steady growth in consumers expenditures, 8.2%, and to Government expenditures on goods and services, 9.7%.

What are the prospects for 1968? Contrary to the gloomy forecasts which we have heard recently, I think that we are back to another period of expansion, not as buoyant as the one which we have just gone through, but very promising. Our Gross National Product might very well increase by 8% in 1968, probably 4.5% in real terms and 3.5% in prices. This enviable record will be made possible thanks to an upsurge of our exports to the U.S.A. and to a great activity in residential construction.

I think that this prosperity will continue well into 1969. The tendencies will be "à la hausse". Am I too optimist? I do not believe so; I certainly hope not.

SOME PERMANENT PROBLEMS

The immediate economic outlook is good and this is the most pleasant part of my remarks. This favorable immediate or short-run economic outlook must not blind ourselves to three very serious permanent problems which plague our economy and run the risk of blurring our record. They are price instability, regional economic disparities and poverty.

PRICE INSTABILITY

The figures which I have just quoted indicate that prices have increased at approximatively 4% per annum in recent years, even in 1967, a year of poor growth. This is what we call inflation. This problem is a very serious one. Inflation erodes your savings: life insurance, pension funds, bank accounts, etc. At 4% per annum, it takes only 20 years for your savings to lose half of their value.

What is more serious, inflation hits everybody. It is a kind of a tax which is much more treacherous than any other tax because it hurts everyone, especially those who cannot defend themselves properly: low and fixed income people. Moreover, unchecked moderate inflation can very well degenerate into galloping inflation. History teaches us many examples in this regard, but we prefer not to hear about them and ask from our economy much more than it can produce. This is the eternal problem of "economic mirage".

Moderate or creeping inflation cannot better be described than by the lines of the French poet, Sully Prudhomme. One day a servant accidentally bruised a valuable vase. There had been no crash and no one had noticed the incident.

"Mais la légère meurtrissure
Mordant le cristal chaque jour,
D'une marche invisible et sûre
En a fait lentement le tour".

which might be freely translated thus:

"But the slight bruise
Eating away at the crystal day after day
With an advance invisible but sure
Wound up by completely destroying it".

So it is with latent inflation. Slowly, but implacably, like cancer, it gets in its work. It puts in question our system of individual liberty and of private enterprise. Uncontrolled, creeping inflation can easily, like cancer, become virulent and cause the ruin of our democratic system. Let us remember what Lenin said, that the surest means of ruining a country is to debauch its currency.

This phenomenon fraught with consequence seems to be attributable to economic, social and potential causes. It seems to be inherent in our system, as we conceive this and as it is functioning at the present time. In other words, our system is quite different from what it was 35 years ago. If at that time it created or permitted the worst depression in our history, it seems now to contain the germs of a contrary situation. At that time, total demand was too low in relation to the productive capacity of the country. Today, we tend to demand more from our economy than we are disposed to supply. The causes of this change are numerous and I will content myself with setting forth those which seem to be the most important.

In the first place, enterprises are bigger and the labour unions more powerful than they were. This is not said by way of laying blame upon anyone whatsoever, but is a simple acknowledgment of fact. Our labour unions were able in recent years to obtain for their members wage increases averaging from 8 or 9% a year, while productivity increased by only 2 or 3% per annum. Enterprises are able to grant these wage increases because they are generally in a position to pass on to the consumer the difference between the wage increase and that of productivity. It often suffices that the biggest enterprise take the first step, for the others to follow almost automatically.

It might well happen that one of the reasons for a demand for a wage increase be a rise in prices. Employers and employees may discuss matters for days on end, throwing the ball back and forth between them, to find out whether it is wages that caused the rise in prices or prices that caused the demand for higher wages. As it occurs with most economic phenomena, effects become in turn causes. We are faced with spirals. In fact, in the present economic context both the above causes are probably at work.

Virulent inflation comes from excessive demand, caused by too much money in circulation. Creeping inflation can also, up to a certain point, be caused by an excessive demand which makes for rising prices of products as well as of the factors of production, including, of course, labour. This is

what happened from 1963 to 1966. It is what economists call "demand pull". On the other hand, in other circumstances, it is the contrary that is happening. The rise in prices is a result not of excessive demand, but of a production cost which is swelling in consequence of continual increases in wages. This is what happened in 1967 and is happening right now.

Why then do the labour unions demand wage increases that they know are higher than productivity? The reason is very simple: it is called "economic mirage", or the problem of the whole and the part. Adam Smith had thought that the desire of an individual (or group of individuals) to improve his lot would bring, as if by magic, the improvement of the lot of the community. Unfortunately, experience has shown that it is not always thus. What is true for one is not necessarily true for all. The union leader who obtains an 8% increase in wages for the members of his union has reason to take pride in his prowess. Who could call him a fool? The fact that other leaders are doing the same thing and that in fact a real increase in total wages can never exceed that of productivity can hardly cause him any anxiety as an individual, even though it ought to sound a warning to the labour movement.

It is true that a rise in prices may cause heightened resistance on the part of the consumer and bring about a slowing-up of production which would have unemployment as a consequence. This might of itself constitute a quite powerful brake upon excessive demands were it not for the fact that in 1945 our government committed itself to the maintaining of full employment. The United States and all the democratic countries have done the same thing. What matter dismissals or layoffs! It is easy, now, to lay one's lot in the hands of the State. Probably as a consequence of hard times in the thirties, we seem to be stricken with the probia of depression. At the slightest sign of a slowing-up, or even a simple correction of the economy we call upon the State to intervene. Political discussions of recent years show to what degree is anchored in us this fear of a depression. We would have liked the boom to continue, even at the price of the inflation it engendered. We have been bearing much about unemployment, but very little about inflation.

At a pinch, appropriate monetary and fiscal policies could, at least to a great extent, prevent or check creeping inflation, but they cannot be applied with success because the public is not disposed to swallow the medicine and the government has not the courage to pour it down the public's throat. It is much easier to adopt monetary and fiscal policies

designed to combat a recession than policies aimed to dam up a flow of inflation.

REGIONAL ECONOMIC DISPARITIES

We have enjoyed prosperity in recent years, but this prosperity has not been shared equally by all regions of the country. The economic development of some provinces was very rapid while other provinces were more or less left behind. As an example, per capita personal income in Ontario was \$2,200 in 1965 while it was \$1,600 in Quebec and only \$1,000 in Newfoundland, the national average being \$1,800.

As another illustration of economic disparities, may I mention some statistics relating to Quebec and Ontario. Quebec has 28.9% of the population of Canada; Ontario has 35%. All the indicators representing growth, strength or dynamism - investments, personal income, industrial production, etc. - are in the neighbourhood of 25% in Quebec and 40% in Ontario. On the other hand, signs of weakness - the number of unemployed, the beneficiaries of social assistance, etc. - are almost 40% in Quebec and barely reach 25% in Ontario. Many measures have been taken to minimize these disparities: ARDA, FRED, the designated areas, just to mention a few. As the Economic Council pointed out in its last review, these programmes have only prevented the disparities from getting worse. This means that we will have to find new ways, new methods in order to cope with this important problem. We will have to devise new programmes. These, to my mind, should be oriented towards the increasing of productivity in the regions concerned much more than to give money away. The development of poles of economic growth should be encouraged. In this respect, it seems to me that the development of mining areas could lead to the elimination of regional disparities. Mining industries are located by their nature in remote areas, in areas, in fact, where there are great disparities. Thus, it seems to me that the programmes for mining development should be tied up with the programmes for regional development. Natural resources should be used as a lever of economic activity. This is at least the conclusion arrived at by the Commission on taxation in Quebec of which I was the chairman. The Carter Commission, I must admit, had a different point of view.

POVERTY

In a country which has a high standard of living - one of the highest in the world - it does not seem very appropriate to talk about the problem of poverty. Unfortunately this problem is real; it is in fact a very serious one. It has been discussed at length recently by the Economic Council and I propose to say very little about it. The Council estimates that 30% of our population could be classified as poor.

Of course, the problem of poverty is very intimately related to the two problems just discussed: inflation and regional disparities. Many people who were above the limit of poverty some years ago have since been thrown below the line by inflation. There is no doubt also that you find a good proportion of the poor in our regions of slow economic growth. However, they are not all there as the Economic Council has mentioned. Many of the poor are found in Montréal, Toronto, Vancouver and in all our big centers. Many people, on account of bad health or poor education, are not in a position to follow the rapid economic development of the country. They contribute little to the national production and they cost hundreds of millions of dollars in relief payments.

In the past, we have taken the easy path: the income maintenance approach. To my mind, this problem of poverty cannot be solved the usual or the traditional way. Instead of using the global approach we will have to use more the individual approach. In other words, each case will have to be analysed and ways will have to be found to bring the poor into productive channels of our economy. Retraining and permanent education are means to this end. This means that we will have to rethink our social security. The income maintenance approach will have to give way to what I may call a productive approach. As an illustration of what I have in mind, I would not hesitate to replace our family allowances by a programme of individual help to families in order to put the bread-winner into the production channel of our economy.

C O N C L U S I O N

As I mentioned earlier, the immediate economic outlook is very good despite the pause we had in 1967. Our economy will grow rapidly in the years to come. However, we are facing three important problems: price instability, regional disparities and poverty. They are not easy, and we will have to devote a great deal of energy to their solution. If we fail, our economic development is doomed to failure.

Dr. Gilbert and I were in college together, and we used to sing in the chapel. A prayer which we sang with great fervour was the Litany. In this prayer, Heaven is pleaded with to deliver humanity from all sorts of scourges, like famine, pestilence and war. If this prayer were to be rewritten today, the Church would certainly add this verse:

"From price instability, regional disparities

And poverty, Deliver us O Good Lord. Amen".

The chairman called on the Honourable A.C. Cameron, Minister of Mineral Resources, Province of Saskatchewan, to thank the speaker.

Honourable Cameron:

Mr. Chairman, Gentlemen,

It is indeed an easy task to respond to the address of our guest speaker this morning after observing the attention which you paid to his address, the response that he got.

I think we have that family spirit here now and this will certainly augur well for the success of this Conference. I think it is rather interesting to note that an economist and a politician this morning are in complete agreement as to the healthy state of the mineral industry in Canada and that they foresee a bright year ahead as well. I think an economist, typical to his nature, does not put everything in black and white; he sets out the great areas in which there are dangers still lurking. I think it was in this area that he perhaps gave one of his most pertinent messages to this Conference when he talked about the possibilities and the dangers ahead unless we take appropriate measures at this time. And in this regard, I am sure you agree with me that Mr. Bélanger delivered to us this morning not only a pertinent question, but, as he says with the professorial questioning, he has, for this Conference and for you people, I am sure, for some time, raised questions that give you food for thought.

It is in the spirit of his address that I think he made his mark and his impression here, and we do wish to thank you, Mr. Bélanger, on behalf of the gentlemen here this morning.

Honourable Allard:

I have a special announcement to make before we leave. The programme of this Conference includes an Industrial Tour to Lake Asbestos of Quebec at Black Lake on Wednesday afternoon. This is going to be a very interesting trip and to facilitate its organizing, would the delegates who intend to make this tour give their name at the registration desk as soon as possible.

And now, ladies and gentlemen let us adjourn this opening session so as to give all of you a chance to rest and get ready for the hard work waiting for you in the committee meetings this afternoon.

In conclusion I want again to thank the Honourable Mr. Greene and Mr. Bélanger and we expect to meet them soon again.

CLOSING PLENARY SESSION

OF THE

MINES MINISTERS' CONFERENCE

WEDNESDAY, SEPTEMBER 18, 1968

HONOURABLE MR. ALLARD (chairman):

Mesdames et messieurs, Ladies and Gentlemen,

Après les deux dernières journées d'études sur les sujets soumis et énumérés dans votre programme, nous avons atteint la fin de nos délibérations. Il me fait plaisir à cette réunion de clôture de vous présenter les rapports des divers comités et les conclusions qu'en ont tirées les ministres des Mines de Provinces du Canada.

Committee No. 1

This committee chaired by Mr. D.P. Douglass and Mr. F. Gover studied the problems relating to mining operations.

I wish to report that the Ministers approved the report of the Committee as presented, except for item j which was amended to read as follows:

- f) "It was recommended that "A Sub-Committee of Committee No. 1 of the Conference of the Provincial Ministers of Mines composed of the senior officers of the Mines Inspection branches of the provinces and territories, or their representatives, be established to discuss changes in mining technology with the objective of having the provincial mining safety regulations as uniform as possible".

Committee No. 2

This Committee on Problems Relating to Exploration and Development was chaired by P.-E. Auger and P.-E. Grenier.

I wish to advise that the report of Committee No.2 was adopted as presented, except for items c et i which were amended to read as follows:

- c) Storage and retrieval of geological data in Canada.

After discussion of the status of this problem, the following resolutions were tabled and accepted unanimously:

"Recognizing the value of a National System for the storage and retrieval of geological data in Canada, the Committee recommends that the Provincial Ministers of Mines ask the Federal Government that the Geological Survey of Canada, in collaboration with the provinces, be requested to continue its excellent work in the field of data processing in order to implement the creation of the National System proposed by the Ad Hoc Committee on Storage and Retrieval of Geological Data in Canada*."

"The Committee recommends that the Provincial Ministers of Mines authorize further study by their respective departments into the creation of a permanent organization to implement the National System on Storage and Retrieval of Geological Data in Canada and to report back to the 1969 Conference of the Provincial Ministers of Mines."

(* see APPENDIX II)

"It is suggested that a vote of thanks be extended by the Provincial Ministers of Mines to the Chairman of the Ad Hoc Sub-Committee on Storage and Retrieval of the Geological Data in Canada for the work done by his Committee."

- i) The Ministers of Mines of the Provinces wish to express their continued concern with the implications of joint and overlapping control covering uranium exploration and production programmes.

While recognizing the necessity of control by the Federal Government covering the sale and export of uranium and thorium, the Mines Ministers wish to emphasize that all pertinent exploration data can be obtained through normal and well established channels of communication with the provinces. These data can be supplemented if such is considered necessary by periodic reports from Provincial Mines Departments. There would appear to be no possible advantage to Canada obtainable by continuation of a dual licensing system to cover exploration for radioactive materials.

The Mines Ministers therefore request that Provincial jurisdiction be restored fully in all areas of Provincial responsibility except in matters of sale and export of uranium and thorium minerals.

Committee No. 3

This Committee chaired by Mr. K.B. Blakey and Mr. J.C. Smith studied the problems of Royalties, Taxation and Tariffs.

I wish to advise that the report of Committee No.3 was adopted as presented, except for items b et c which were amended to read as follows:

- b) "In view of the changes in the Ministerial portfolios in the Federal Cabinet following the June election, it is recommended by the Provincial Ministers that the views on the Carter Commission report submitted to the Federal Government following the twenty-fourth Conference in Regina be reaffirmed. The resolution adopted by the Ministers in Regina read as follows:"

"It is resolved that the Ministers record with the Federal Government in the strongest terms the deep concern of the mining and petroleum industries with respect to the adverse effects on those industries which adoption of the recommendations contained in the report of the Carter Commission would entail".

- c) 1. "It is resolved that the Mines Ministers request the Federal Government to grant a depletion allowance to the sodium sulphate producers."
2. "A motion was adopted recommending that the Sub-Committee on the feasibility of obtaining uniformity of allowance costs for mining tax purposes be reconstituted and that Mr. Jean Tétu, of Quebec, and Mr. B.C. Lee, of Ontario, be appointed as Co-Chairmen of the Sub-Committee and that they report to the next Mines Ministers' Conference".

Committee No. 4

This Committee chaired by Dr. J.P. Nowlan studied the problems of Coal.

I wish to advise that the report of the Coal Committee was adopted as presented.

Committee No. 5

This Committee chaired by Mr. H.H. Somerville studied the problems of Petroleum and Natural Gas.

I wish to advise that the report of the Committee on Petroleum and Natural Gas was adopted as presented.

Committee No. 6

This Committee chaired by Mr. J.T. Cawley studied the problems related to Education and Manpower.

I wish to advise that the report of the Committee on Education and Manpower was adopted as presented.

Honourable Allard:

Gentlemen, This concludes the report from the Ministers to the Plenary Session.

Before going any further, having made this report which was unanimous, I would like to call on the Honourable Lawrence, who has a word for you this morning.

Honourable Lawrence: Monsieur le Président, Honourable Ministers and Gentlemen,

It is not my pleasant duty to indicate appreciation and gratitude to our Host Province today, but it is my duty to inform you, I think, and in the spirit of competition which prevails in the mining industry, I have extended an invitation to the Ministers and to this gathering on behalf of the Government and the people of the Province of Ontario to hold next year's Conference in the great Province of Ontario.

Now, I say it is not my duty to express our thanks and our gratitude to our Host Province, this will be done by others, but we in Ontario take up the challenge of that competitive spirit and we know that it is going to be a very very heavy job, but perhaps next year we can do a little bit better than we have this year. I can promise you one thing - I hope there will not be a liquor strike and you will not have to line up for your "stimulants". Now in that spirit, I hope to see you all next year at approximately the same time in the City of Toronto, when the Government of Ontario will be Host to this Conference, and I extend this invitation to you and to the Ministers.

Honourable Allard: Thank you, Mr. Lawrence. We accept this invitation and I hope that we will have next Year twice as many people as we had in Quebec.

Now I would like to call on Mr. Callahan.

Honourable Callahan: This is not my first visit to your Province or to Quebec City, but I think it is by far and easily the most pleasant one, and I think each of us feels

much the same way. Arrangements have been tremendous, we were well looked after, we can go home and tell everybody we see that "hospitalité" is served here, and I think we all look forward to coming back. My one problem is that now that my Province is in a position to invite the Conference to Newfoundland when the appropriate time comes, when the term comes up, we shall have problems trying to beat the effort that has been made here. So on behalf of the Ministers and all concerned, I want to warmly thank you, Mr. Minister, for the hospitality, the arrangements and the kindness that have been shown us in Quebec this week. Thank you very much.

Honourable Allard: Thank you, Mr. Callahan. When you go back to Newfoundland you can tell Joe that we still think a lot of good about him!

Now I would like to call on Mr. Craik, the young fellow from way out West.

Honourable Craik: Monsieur le Président, I would like to second what Mr. Callahan from Newfoundland has said here about the very fine time we have had here in Quebec, and I would also like to further move that we have a special vote of thanks go the Hotel and staff through the Management and Maitre d' for the exceptional time we have had within the Hotel itself. I am a little concerned about the competition that goes on between Ontario and Quebec. I have been hearing for a couple of days now: "If you think this year is good, wait till next year!" In 1970, the year following, which is Manitoba's Centennial Year, the Conference is being held in Manitoba, and I do not know what we are going to have to do if next year is any improvement on this year! I would like to ask the Secretary to convey our congratulations and thanks to the staff of the Chateau Frontenac.

Honourable Allard: It was nice to hear these words, and I am sure that the people from the Chateau Frontenac will be glad to hear that at least, outside of criticism, there were a few words in their favour.

Now we would like to hear a few words from the Honourable Mr. Richter.

Honourable Richter: I want to take this opportunity, on behalf of the Ministers and Deputy Ministers, to thank the industry for their participation in this Conference, and I am sure you will agree that this would be rather a short Conference if we did not have the industry, who are so eminently and so highly concerned in this very important phase of our economy in this great country of Canada, and on behalf of the Ministers and myself I want to thank the industry most sincerely for their participation and the strength that they lent in making this such a successful Conference.

Honourable Allard: Thank you, Mr. Richter. I am sure the industry will appreciate the words you just said.

Now I would like to know if there is any business to be brought from the floor.

Mr. R.D. Lord, Pres., Ontario Mining Association:

Mr. Minister, may I offer, on behalf of the delegates and guests here today, our appreciation for the wonderful hospitality in Quebec and for the very useful sessions that we have been a party to and furthering, we hope, your deliberations. These conferences are becoming progressively more useful every year and we are all very appreciative for having been included in them.

Honourable Allard: Merci infiniment de ces paroles des plus agréables.

Nous voulons vous répéter que la province de Québec a été très heureuses de recevoir toutes les délégations de chacune des provinces. Je voudrais, en terminant, remercier les membres du personnel du ministère des Richesses naturelles qui se sont appliqués à organiser avec autant de succès le congrès que vous avez connu. The staff of my Department has done quite a lot, and if this has been a success, I think we owe it to them and I want to thank them and let them know that we have not seen all the problems they have had.

In closing, I wish to thank each and every one of you who have accepted to come to Quebec for this Conference. I want you to go back home feeling happy about it, and if you found that this was agreeable, then tell it to your friends, and whenever you feel like coming back, we will always be glad to greet you.

APPENDIX I

AGENDA AND REPORTS OF THE COMMITTEES

COMMITTEE No. 1 - Committee on Problems Relating to Mining Operations; Co-Chairman: D.P. Douglass - F. Gover

A) AGENDA OF THE COMMITTEE

- a) Résumé of new legislation to be presented by all Provinces.
- b) Non-destructive Testing of mine hoist ropes and hoisting equipment (Brought forward from 1967 Conference).
- c) New developments in the safe handling and use of high explosives and blasting agents in mines (Suggested in 1967 Conference).
- d) Effects of noise on mine workers' health (Brought forward from 1967 Conference).
- e) Discussion of hazards of radiation in uranium mines and metallurgical plants (Brought forward from 1967 Conference).
- f) The requirements for direct-fired mine air heating plants (Manitoba).
- g) Safety requirements for underground haulage locomotives and trains (Manitoba).
- h) The need for a standard training course for underground miners and the issuing of Miner's Certificates that would be acceptable to all Provinces (Saskatchewan).
- i) Shaft sinking and raising by coring machines (British Columbia).

- j) Recommendation that a subcommittee, consisting of the Chief inspectors of mines of all Provinces, be appointed for the purpose of developing uniform mining regulations; this subcommittee to meet at the call of its chairman (Saskatchewan).
- k) Health hazards from the mining of mercury ores (British Columbia).
- l) Federal Labour Code - overlapping jurisdiction with Provinces (Saskatchewan - British Columbia).
- m) Problems created by the growth of towns and villages on mining concessions (Quebec).
- n) Mining land reclamation (British Columbia).
- o) Air and water pollution resulting from mining operations (Quebec).
- p) Other business.

B) REPORT OF THE CO-CHAIRMEN OF THE COMMITTEE

- a) A résumé of new legislation was presented by all Provinces and discussed by a few delegates. It was recommended that this item be carried over to next year's agenda.
- b) This subject of non destructive testing of mine hoist ropes and hoisting equipment did not generate much discussions and, unless some new information is available for the 1969 meeting, the subject should be dropped from the agenda.
- c) A good discussion took place on new developments in the safe handling and use of high explosives and blasting agents in mines. This discussion consisted mainly of an exchange of ideas and, unless new development takes place in that field during next year, the subject should not be placed on the agenda of the 1969 meeting.
- d) The effects of noise on mine workers' health should be carried over on the 1969 agenda.

- e) The subject of hazards of radiation in uranium mines and metallurgical plants should likewise be carried over next year's meeting.
- f) The lack of interest shown by the delegates on the subject of requirements for direct-fired mine heating system suggested that it should not be included in next year's agenda.
- g) The subject of safety requirements for underground haulage locomotives and trains was introduced to find out the experience of Provinces in that field. It appears that it should be left out in next year's conference.
- h) At the end of the discussion on the need for a standard training course for underground miners and the issuing of Miner's Certificates and Blaster's Certificates that would be acceptable to all provinces, the following motion was brought forward: "A subcommittee of Committee No. 1 of the Conference of the Provincial Ministers of Mines be appointed to draw up a standard syllabus for the training of miners in the proper handling and firing of explosives for presentation to and with a view for acceptance by the mining industry".

The motion was defeated.
- i) The subject of shaft sinking and rising by coring machines was for information purposes only and should be dropped from the agenda.
- j) The following motion was proposed and approved by the delegates on the matter of developing uniform mining regulations throughout Canada: "A subcommittee of Committee No. 1 of the Conference of the Provincial Ministers of Mines, composed of the senior officers of the mines inspection branches of the Provinces and territories, or their representatives, be established to discuss changes in mining technology with the objective of having the provincial mining safety regulations as uniform as possible".
- k) No discussion took place on the health hazards from the mining of mercury ores.

- l) The Committee felt deeply concerned of the effect that the Canada Labour Safety Code will have upon the operation of the Provincial mines inspection branches. Its members feel that this is an infringement of Provincial rights and an unnecessary duplication of services.
- m) Information was exchanged on the problems created by the growth of towns and villages on mining concessions and this item should be dropped from the agenda.
- n) A lengthy discussion was carried out on the subject of mining land reclamation and it was felt by the members of the Committee that this deserves intensive study in the future, but that it should not be brought back in next year's conference.
- o) Much discussions took place on the air and water pollution resulting from mining operations, but it was suggested that the questions would not be introduced again next year.
- p) In the matter of other business, it was recommended that the Federal Department of Energy, Mines and Resources' approval number be required to be stamped on all approved fire-retardant conveyor belts for sale in Canada.

COMMITTEE No. 2 - Committee on Problems Relating to Exploration and Development
Co-Chairmen: P.-E. Auger - P.-E. Grenier

A) AGENDA OF THE COMMITTEE

- a) Résumé of new legislation to be presented by all Provinces.
- b) Results of the research undertaken in the field of electromagnetic surveys by the Provincial and Federal Governments (Suggested in 1967 Conference).
- c) Storage and retrieval of geological data in Canada.

- d) Progress report on electronic data processing of information related to geology and mineral deposits. (Quebec and Saskatchewan).
- e) Standardization of laws and regulations concerning the acquisition of mining rights throughout Canada (Quebec).
- f) Advantages and disadvantages of map staking (Quebec).
- g) Special licenses -vs- staking following revocation of mining concession or patented claims (Quebec).
- h) Ownership of data acquired through the use of public funds (Quebec).
- i) Federal Uranium exploration permits - overlapping jurisdiction problems (Saskatchewan).
- j) Closer relationship and better collaboration between research organizations sponsored by governments, universities and mining companies (Quebec).
- k) Federal and Provincial participation in the construction of resource roads (British Columbia).
- l) Report on and recommendations respecting communications problems facing the mining and petroleum industry in remote areas at the time of exploration and development (Alberta).
- m) Other business.

B) REPORT OF THE CO-CHAIRMEN OF THE COMMITTEE

- a) A review of the new legislation and regulations in the mineral exploration and development in each Province shows that no change of importance is being considered for this year, except Alberta which is now operating under a new Mines and Minerals Act as of October 1967. In addition, New Brunswick has introduced a new Bituminous

Shale Act, plus certain amendments to the Mining Act. Ontario also has an Act to amend the Mining Act.

- b) It was reported that initial experiments in the field of electromagnetic surveys were completed and that further work is to be done along the line of systematizing instrumentation in this field. The results of this work are to be reported at next year's meeting.
- c) After discussion of the status of the problem of storage and retrieval of geological data in Canada, the following resolutions were tabled and accepted unanimously: "Recognizing the value of a National System for the storage and retrieval of geological data in Canada, the Committee recommends that the Provincial Ministers of Mines ask the Federal Government that the Geological Survey of Canada, in collaboration with the Provinces, be requested to continue its excellent work in the field of data processing in order to implement the creation of the National System proposed by the Ad Hoc Committee on Storage and Retrieval of Geological Data in Canada."
"The Committee recommends that the Provincial Ministers of Mines authorize further study by their respective departments into the creation of a permanent organization to implement a practical National System on Storage and Retrieval of Geological Data in Canada and to report back to the 1969 Conference of the Provincial Ministers of Mines".

It was suggested that a vote of thanks be extended by the Provincial Ministers of Mines to the Chairman of the Ad Hoc Sub-committee on Storage and Retrieval of Geological Data in Canada for the work done by his Committee.

- d) On the matter of electronic data processing of information related to geology and mineral deposits, it was reported that electronic data processing is presently being used in the field by increasing numbers of geologists. Not only is the method being more widely accepted by geologists but new data processing sheets are being developed to increase their efficiency in field operations.

Progress is also being made in developing more meaningful data input cards.

Several Provincial Governments are compiling data with various formats and a report on this will be prepared and submitted.

- e) The standardization of laws and regulations concerning the acquisition of mining rights throughout Canada has been desired all along and it is achieved automatically through formal amendments of mining acts in the various Provinces. Indeed, each time a Province wants to amend its mining law it takes advantage of the experience of other provinces in the same field with the final result that there is a tendency towards uniformity. Such differences as may remain are due to the basic fact that the mining laws are Provincial matters as mentioned in the British North America Act.
- f) In the course of the discussion on the advantages and disadvantages of map staking, it was pointed by several delegates that map staking can be advantageous only where good maps and photographs are available. However, in many places, and especially in the Precambrian areas, proper maps are not available and map staking is not practical.
- g) The subject of special licenses -vs- staking following revocation of mining concession or patented claims was dropped from the agenda because it concerned only the Province of Quebec and no other delegates were interested in it.
- h) It was recommended that data obtained through the use of public funds and now entered in data processing system should be made available as soon as possible. However, it was also recommended that the author or collector of data should be given special time to confirm his information prior to releasing it.
- i) Following the Provincial Minister's resolution of 1967 dealing with the restoration of the provincial jurisdiction to the Provinces in respect to uranium and thorium except in the matter of international sales and exports thereof, the

Honourable J.J. Greene made a statement to the effect that "except in matters related to national security and foreign policy, uranium mines should be subject to the same rules as those which the provinces exercise over those mines".

Dr. Lawrence, of the Atomic Energy Board, in clarification of the Honourable Greene statement, said very clearly that permits and regulations issued by the Dominion Government and covering exploration development and operation would remain essentially the same. Dr. Lawrence also stated however that he was prepared to discuss these matters with the Provinces.

The subject of closer relationship and better collaboration between research organizations sponsored by governments, universities and mining companies was answered in part by the Honourable J.J. Greene's announcement of the formation of a National Advisory Committee on Research in Mining and Metallurgy.

The proposal of the Federal Government to establish this National Advisory Committee was discussed at length. It was stated that it will be structured on the same formula as the National Advisory Committee on Research in Geological Sciences that has been in operation for some fifteen years. It will therefore be a purely scientific body made up of representatives of the Federal and Provincial Governments, the universities and the industry to inform the world of science of the work that is being done in the field of research. It will also provide and distribute funds for such research.

- k) It was brought to the attention of the Committee that roads to mining properties are indeed very important. The concept of resource roads seems however to meet with difficulties because it is focussed on mining alone rather than a regional concept. The Federal Government has indicated that it would not participate directly in such projects. Dr. Thompson, Ontario, stated that they are now using an interdepartmental approach by means of standing committees studying every project taking into consideration mining, tourism, forestry, etc.

The question was brought up as to whether the Ministers of the other Provinces should take this concept under further scrutiny as a means of opening up remote areas possibly with the help of the Federal Government.

- 1) Following the Provincial Ministers' recommendation of 1967, a Committee was formed to study the matters of communication problems in remote areas. This Committee consists of four members, two appointed from the petroleum industry and two appointed from the metals industry. The work of the Committee will consist of making proper contact with the communications industry and the Department of Transport with the aim of searching out solutions to the inherent problems.

COMMITTEE No. 3 Committee on Royalties, Taxation and Tariffs
Co-Chairmen: K.B. Blakey - J.C. Smith

A) AGENDA OF THE COMMITTEE

- a) Résumé of new legislation to be presented by all Provinces.
- b) Carter Royal Commission - New action (Saskatchewan).
- c) Other business.

B) REPORT OF THE CO-CHAIRMEN OF THE COMMITTEE

- a) In the matter of new legislation Quebec reported amendments on the Mining Duties Act concerning appeal procedures and a change in the definition of the words "mine" and "mining operation" to exclude the storage of petroleum and natural gas so as to avoid double taxation.

In British Columbia the Mining Tax Act was amended and the three-year "tax-free" period was abolished. In addition the tax was raised from 10% to 15% on income in excess of \$10,000. rather than the previous \$25,000.

b) With regards to discussions on the Carter Royal Commission Report, the following resolution was moved and adopted: "In view of the changes in the Minister's holding portfolios in the Federal Cabinet following the June election, it is recommended to the Provincial Ministers that the views on the Carter Commission Report submitted to the Federal Government following the Twenty-fourth Conference in Regina be reaffirmed. The resolution adopted by the Ministers in Regina read as follows": "Resolved that the Ministers record with the Federal Government in the strongest terms the deep concern of the mining and petroleum industries with respect to the adverse effects on those industries which adoption of the recommendations contained in the report of the Carter Commission would entail".

c) The following recommendations were made on the subject of "Other business":

1. Representatives of the sodium sulphate producers introduced a motion which was adopted recommending that the Mines Ministers request the Federal Government to make a decision granting or denying the benefit of a depletion allowance to those producers and that such decision not be deferred until the framework of proposed tax reforms have been announced.
2. A motion was adopted recommending that the subcommittee on the feasibility of obtaining uniformity of allowable costs for mining tax purposes be reconstituted.

If this recommendation is approved by the Ministers it is then recommended that Mr. Jean Têtu of Quebec and Mr. C.C. Lee of Ontario be appointed as Co-Chairmen of the subcommittee and that they report to the next Mines Ministers' Conference.

COMMITTEE NO. 4 - Coal Committee - Chairman: J.P. Nowlan

A) AGENDA OF THE COMMITTEE

- a) Résumé of new legislation to be presented by all Provinces.

- b) Air Pollution by coal use as combustible (Nova Scotia).
- c) Other business.

B) REPORT OF THE CHAIRMAN OF THE COMMITTEE

- a) No new legislation was reported by the Provinces in the past year, but Mr. A.R.C. James, Department of Mines and Petroleum Resources, British Columbia, stated his Province is in process of drafting new legislation which, it is hoped, will bring all types of mining under one Act. In this Bill, certain aspects of mining common to both coal mines and metal mines, whether underground or open pit, will be covered together. However, there will be separate sections for rules concerning coal mines and metal mines respectively where differences require it.

It was the agreement of the meeting that all Provinces would like to receive drafts or copies of the new British Columbia Bill when and if they could be made available.

There was a discussion of the problems arising from lack of reciprocal recognition of mine management certificates granted by provincial and other jurisdictions, including those of the United Kingdom and the various States of the United States. Moved by Mr. Frank J. Harquail and seconded by Mr. David Burchell.

That the Provinces consider legislation which would permit the recognition of equivalent mining certificates from other competent jurisdictions. Carried unanimously.

- b) Mr. Michael J. Hobson of H.G, Acres & Co., Ltd., gave an outline to the meeting of certain current and prospective problems of air pollution and led a very stimulating question period on various approaches for alleviation.

After an extended discussion of air pollution from all fuel sources, the committee was of the opinion that much more research is urgently needed on the matter before intelligent conclusions can be drawn.

- c) In the discussion on "Other business", it was noted that there is a Bill before the Federal Parliament to provide for the dissolution of the Dominion Coal Board.

After discussion, the committee agreed on the following: The Canadian coal industry considers that maintaining an avenue of communication to the Federal Government on a national basis is of the utmost importance but is not prepared at this moment to recommend the actual form in which this should be maintained.

The industry is presently faced, and will continue to be faced, with many problems in regard to such matters as research, transportation, markets, mining technology and legislation, both federal and provincial.

The industry plans to make definite recommendations to the Minister of Energy, Mines and Resources on these matters within the next several weeks.

COMMITTEE No. 5 - Committee on Petroleum and Natural Gas
Co-Chairmen: H.H. Somerville - N.J. Gobert

A) AGENDA OF THE COMMITTEE

1) TECHNICAL SUBCOMMITTEE

- A) Consideration of the reports of the subcommittees,
 - a) Natural Gas Markets
 - b) Regulatory Practices, and
 - c) Statistical (Alberta).
- B) Adoption of recommendations of Spacing Committee Report of April 1958 (Saskatchewan).

- C) Review and up-dating of the Model Pipe Lines Act 1959, and establishment of Model Pipe Line Regulations (Saskatchewan).
- D) Preparation of an index of all Model Acts, Regulations and approved Reports, and establishment of a central library where such models may be obtained (Saskatchewan).
- E) Other business.

II) LANDS SUBCOMMITTEE

- A) Consideration of the report of the Oil and Gas Subcommittee (Alberta).
- B) Review of Preisen Commission Report on surface rights and action taken to date by Saskatchewan Department of Mineral Resources (Saskatchewan).
- C) Other business.

III) COMMITTEE MEETING

- A) Résumé of new legislation and procedures to be presented by all Provinces.
- B) Consideration of the reports of the Subcommittees,
 - a) Technical Subcommittee
 - b) Lands Subcommittee
- C) Discussion of and recommendations for the solution of the problems involved with respect to air and water pollution attributable to exploration, production and transportation of oil and gas.
- D) Markets for crude oil, natural gas and sulphur.
- E) Report on the problems of protection of natural gas pipe lines against leakage from direct current power transmission lines.

- F) Report of the ad hoc committee with respect to terms of reference, composition and the methods of operation of Committee No. 5.
- G) Report on and recommendations respecting communications problems facing the mining and petroleum industry in remote areas at the time of exploration and development.
- H) Other business.

3) REPORT OF THE CO-CHAIRMEN OF THE COMMITTEE

The Committee met on September 17, 1968, and the working subcommittee met on occasion during the year.

Government representatives gave a résumé of new legislation and procedures enacted in their jurisdiction.

During the past year, the Lands subcommittee completed

- a) revisions of:
 - (i) the Model Unit Agreement, and
 - (ii) the Model Unit Operating Agreement, and
 - (iii) the Model Accounting Procedure
- b) a Model Pipe Line Crossing Agreement, and
- c) amendments to
 - (i) the Model Pipe Line Act, and
 - (ii) the Model Pipe Line Regulations

The printing and distribution to governments and industry of these Models and Amendments was approved by the Committee.

The Technical Subcommittee through its working subcommittees has:

- a) revised Model Rules respecting:
 - (i) Blowout Prevention Requirements
 - (ii) Deviation and Directional surveys
 - (iii) Removal of Drilling Equipment, and
 - (iv) Restoration of Surface

- b) considered a common coding system in card format that will permit:
 - (i) the submission of uniform data for oil and gas production on standardized forms, and
 - (ii) compatibility of published statistics
- c) reported on Natural Gas Markets.

Reports of the working subcommittees will be distributed to governments and industry.

The Committee discussed a proposal for reporting on markets for crude oil, natural gas and sulphur.

A report on the problem of protection of pipe lines against leakage from direct current power transmission lines was presented by Mr. George Kellam, representative from the Canadian Gas Association. The report will be distributed in printed form to governments and industry.

The report of the ad hoc Committee with respect to the terms of reference, composition and methods of operation of Committee No. 5 was adopted as follows:

1. Committee No. 5 should consist of the Co-Chairman, the Secretary, at least two (2) members from each Mines Department or allied government agency, and some thirty (30) members from industry nominated by industry associations.
2. An agenda Committee was formed to consist of four (4) government and four (4) industry members of Committee No. 5.
3. Study groups would be established to study and report upon items as requested from time to time. The Chairman of each study group would, excepting for the coming year, be appointed by Committee No. 5 and he would choose the members he thinks best suited to contribute to the topic. In the ensuing year, the Chairman of each study group would be appointed by the Agenda Committee.

4. Each study group would make its report by June 15 and the reports would be distributed by the Secretary to all members of Committee No. 5 for consideration at the next Conference.

The continuation of:

- a) the drafting of a Model Grant of Right of Way,
- b) the review of Mechanics Lien Legislation, and
- c) the analysis of Expropriation Legislation affecting the oil and gas industry.

have been recommended to the Agenda Committee as well as studies respecting:

- a) the problems involved with air and water pollution attributable to exploration, production and transportation of oil and gas, and
- b) the determination and application of production adjustment factors to off-pattern wells.

The Committee recommends its continuation as a standing Committee to meet during each conference.

COMMITTEE No. 6 - Committee on Education and Manpower
Co-Chairmen: J.T. Cawley - W.W. Mair

A) AGENDA OF THE COMMITTEE

- A) Résumé of new legislation and procedures to be presented by all Provinces.
- B) Report of Education Committee of C.I.M. on Mineral Industry Manpower Survey (Suggested in 1967 Conference).
- C) Some comments on the results obtained by the Quebec special committee on education on the mineral industry during the past year.
- D) Discussion on "Introduction of resource study background at high school level" (Saskatchewan).
- E) Discussion on "trends at universities to do away with:
 - a) mining options;
 - b) geological engineering options;
 - c) petroleum engineering options; (Saskatchewan).

F) Advisability for the Mining Industry to improve its public image (Quebec).

G) Other business.

B) REPORT OF THE CO-CHAIRMEN OF THE COMMITTEE

The Chairman reported briefly upon the proceedings of the committee convened in 1967. Mr. K. Buck, the new Chairman of the Education Committee of the C.I.M., advised that the report on "Manpower Requirements of the Canadian Mineral Industry" had been completed and released to the mineral industry through each of the provincial departments. It was pointed out that the said report was available on a continuing basis to interested parties from the head office of the C.I.M. in Montreal. It was further reported that the factual data upon which the report had been based was now committed to punch cards. The punch card information may be obtained by any company studying manpower requirements by submitting their request and the basis of their study to the office of the C.I.M. Mr. Buck also reported that the general release of the report had been determined by the suggested procedures outlined by the Mines Ministers' Education and Manpower Committee at its September 1967 meeting:

- 1) Released simultaneously from C.I.M., headquarters and each of the provincial Departments of Mines;
- 2) Each province was to follow up with appropriate supplementary support to local press;
- 3) The C.I.M. at its annual meeting in Vancouver in April of 1968 was to feature a discussion panel on manpower based upon the report.

In order to obtain maximum benefit to those concerned it was recommended that each province might still wish to implement public press releases to further emphasize the important information available from the study.

In discussion which followed Mr. Buck's report, it was suggested that each province should give whatever follow-up emphasis was deemed necessary and that the availability of the report be emphasized by the Mines' departments of each province.

It was noted that the report had been very favourably commented upon by many of its recipients and had been well worth the time and energy spent upon its compilation.

It was moved and approved that the Provincial Ministers of Mines wish to express their appreciation to the C.I.M. for sponsoring and completing such a timely study.

A delegate from the province of Quebec reported upon a special educational project related to the mining industry conducted by the Quebec City branch of the C.I.M. The Quebec City branch had made a special effort to foster interest in the mining industry among young people who might be encouraged to undertake the selecting of a career in Canada's mining industry. Their program had been highlighted by:

- 1) Visiting secondary schools;
- 2) Preparing educational brochures related to and explaining the mining industry;
- 3) Visiting with and talking to teachers engaged in secondary education.

The educational committee of the C.I.M. volunteered to undertake a summary and commentary of the Quebec City undertaking and to distribute said commentary to each of the branches.

Commentary indicated that the active educational program undertaken by Quebec had met with gratifying success in terms of students entering the various disciplines devoted to the mining industry by Quebec universities.

Delegates emphasized that industry itself could do much to assist in promoting interest in the educational process and recruitment of professionals to the mining industry by:

- 1) Preparing appropriate pamphlets in the communities of their active mining interest;
- 2) Promoting films of interest setting out the advantages of careers in mining;
- 3) Promoting visits to mining properties by:
 - a) teachers;
 - b) students.

- 4) Developing policy on tourism and providing effective brochures in connection therewith;
- 5) Providing more bursaries and scholarships for undergraduate, graduate and post-graduate work in the mineral sciences and engineering of our universities.

The Chairman of the committee on manpower and education was asked to contact each provincial mines department with the view of asking the departments of mines to forward to each province whatever brochures of interest their government might have which promoted or could be put to useful promotion of the mining industry.

It was also reported that the Quebec City branch of the C.I.M. had prepared a French text for the Film "The Nation Builders" and such film was available to any interested party from:

- a) Quebec Department of Natural Resources;
- b) National Film Board;
- c) Quebec Film Board.

The Ontario delegate indicated that Ontario had a number of educationally oriented pamphlets which could be made available to any interested party and in particular to mining associations, provincial departments of Mines, etc.

It was brought to the attention of the committee that the "Mining Association of Canada" at its head office in Toronto has a number of excellent brochures available upon request. These brochures are prepared in both French and English. In particular the brochure "Mining - what it means to Canada" is recommended.

Resolutions respecting:

- 1) Secondary school education
- 2) University mining options

are respectfully presented for consideration of the mines ministers:

1) "Be it resolved that the mines ministers undertake representations to departments of education of each of their respective provinces towards the objective of introducing into the secondary school curricula a course or courses of study which would at a minimum effectively introduce the elementary terminology necessary for basic appreciation of the mineral sciences".

2) "Be it resolved and recommended that the mines' ministers of each of the respective provinces undertake, in so far as is reasonably possible and prudent, the influence of his good office in promoting, supporting and encouraging boards of governors of universities, Senates of universities and other university authorities their genuine concern for the introduction of and maintaining of mineral disciplines and related options as a continuing need in our universities".

It was reported that the Centre of Settlement Studies, located at the University of Manitoba, has completed its first year of operation. During this period, it has embarked on a substantial number of interdisciplinary research projects including some on-the-ground studies in selected single-enterprise communities. The Centre received financial support amounting to \$97,000. for its first year, from Central Mortgage and Housing Corporation. It is now seeking increased financial support for the second year which has now commenced, from both government and industry. To support its request for funds it has prepared a report on its research activities scheduled for 1968-69; the latter includes a continuation of research projects commenced in 1967-68, as well as a number of new projects. The map accompanying the Centre's first annual report clearly demonstrates that the majority of single-enterprise communities in Canada are those which are mineral or forestry based. In conducting

its research program, the Centre will be consulting a variety of institutions and organizations and co-operating, in particular, with the mineral and forestry industries.

Other visual aids are provided through the C.I.M. Education and Public Relations Committees which are making industry films available to schools and other interested groups. There is no charge for this service.

The Federal Department of Energy, Mines and Resources has a series of mining film strips which have proved quite useful and popular.

Following a discussion of the "image of the mineral industry", it was felt that this was still an urgent problem in Canada and that Ministers should use whatever means possible, including P.R. and joint government-industry programs, to encourage the mineral industry and many companies to present a more favourable public image of the activities and accomplishments of the industry.

It was recommended that Committee No. 6 be continued as a standing Committee of the Mines Ministers' Conference.

APPENDIX II

PROPOSAL FOR ESTABLISHMENT

OF THE

CANADIAN GEOSCIENCE DATA INSTITUTE

Toronto,
August 8, 1968.

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1. SUMMARY

The National Advisory Committee on Research in the Geological Sciences, whose members are drawn from industry, universities, research foundations, the Geological Survey of Canada and Provincial Departments of Mines, reported in 1964 that many Canadian organizations had recognized the potential value of computer techniques for storing, retrieving and analyzing geoscience data, and were preparing to establish the necessary computer systems. Such systems would be used for exploration, research, planning, and administration. Although building the systems was technically feasible, difficulties were immediately encountered in collecting standardized or compatible data to place in the files. The problem was aggravated by continually increasing volumes of data being produced by more and more sources. The need for Canada-wide standards became clearly apparent.

For this reason the National Advisory Committee established an ad hoc committee comprising geologists from industry, universities, the Geological Survey of Canada and Provincial Departments of Mines, to study and report on this problem. Specifically, it was requested to consider whether a computer-oriented system for data storage and retrieval could be devised usable by any Canadian public or private organization.

The committee's recommendations to establish a National System for storage and retrieval of geological data were adopted by the National Advisory Committee at its April, 1967 meeting and published in September, 1967 by the Geological Survey of Canada on behalf of the National Advisory Committee. Requests for the report have come from throughout Canada and the world, resulting in the distribution to date of about 2,000 copies. The report represents the world's first proposal to coordinate the dissemination of geoscience data on a national scale.

In order to implement the report's recommendations, the National Advisory Committee set up a new subcommittee charged with establishing the necessary organisation. After lengthy

study and consultations with members of the ad hoc committee, the National Advisory Committee and other geologists throughout Canada, the subcommittee recommends establishment of an independent body, the Canadian Geoscience Data Institute.

The proposed Institute will have a nine-man Board of Directors, and Advisory Board representing governments, universities and industry, and, initially, staff comprising an Institute Director and a Chief Indexer, with secretarial assistance. It is proposed that the Institute be financed in its initial stages by contributions shared equally by the Government of Canada and the Provinces, each Province contributing an amount proportional to its share of Canadian mineral production. It is projected that within five years the Institute will be largely self-supporting.

It is proposed that the Institute begin operations on 1 April 1969, with an annual budget of \$100,000. Objectives of the Institute will be directed towards the scientific advancement of the geosciences and increased effectiveness in mineral resource exploitation in Canada through the development of a national of computer-processable geoscience data files (the National System), operation of a National Index to geoscience data, the development of standards for data, and coordination of computer applications.

2. BACKGROUND

In common with many other areas of science, the geosciences are facing serious problems with the ever-increasing volumes of data being produced by industry, universities, and government agencies. At the same time there has been a dramatic growth in the number and capability of computers, electronic display devices, and data-transmission media; this advancing technology holds the key to effective solution of these problems and offers a new vista for advancement in the geosciences.

In response to this opportunity, an ad hoc committee was formed in April, 1965 by the National Advisory Committee on Research in the Geological Sciences and charged with the responsibility of taking the necessary steps to develop a national system for storage and retrieval of geological data. This committee,

chaired by Dr. S.C. Robinson, Geological Survey of Canada, and eight subcommittees comprised forty-four scientists representing a cross-section of disciplines, geography and employers in Canada. Twenty-eight formal meetings were held during a two-year period and in September, 1967 their report "A National System for Storage and Retrieval of Geological Data in Canada"* was published.

This report confirmed that computer technology indeed offered geoscientists a new tool for advancing their science. It provides a practical means for processing and using large volumes of data, including analysis, synthesis and selective retrieval, for modelling of geological processes, and for numerous operations otherwise impossible. The implications for increased effectiveness of mineral resource development are profound.

Equally evident to the committee was the realization that a transition from traditional to computer-oriented methods could not be accomplished simply or readily. Such a transition would involve the re-thinking of many fundamental scientific questions, experimentation with data-collection techniques, development of storage and retrieval programs, and other aspects requiring evolutionary development. Thus, the establishment of a permanent coordinating organization was recommended by the committee.

The urgency for implementing a National System was revealed by a census indicating at least 135 Canadian computer-processable files in operation by January, 1968. The lost opportunities, redundancy and wastefulness that would result from uncoordinated development of these and future, more extensive, files is not difficult to imagine. The proposed Canadian Geoscience Data Institute, which would implement the National System, is described below.

* Brisbin, W.C., and Ediger, N.M., Editors, 1967, A national system for storage and retrieval of geological data in Canada. National Advisory Comm. Research Geol. Sciences (available from Geol. Survey of Canada). 175 p. 4 tables, 12 figs., appendices.

3. INSTITUTE CONCEPT

Objectives

The proposed Institute will be a national organization dedicated to the dissemination of geoscience data and information in the most useful, efficient and economical manner possible. Use of the Institute services will be voluntary. Its means of disseminating information will be principally by encouraging, coordinating and assisting other organizations in developing computer-processable files of geoscience data, and by creating a National Index to geoscience data. It is proposed that, initially, the Institute be financed by both the Provincial governments and the Federal government, but it is expected that the Institute will eventually be largely self-supporting through sale of its services. Objectives of the Institute will be directed towards the scientific advancement of the geosciences and towards increased efficiency in mineral resource exploitation in Canada. In particular, its objectives will be:

1. To establish a network of computer-processable geoscience data files in Canada, that is, implementation of the National System for storage and retrieval of geoscience data.
2. To develop, maintain and operate a National Index to geoscience data.
3. To assist and promote the development of standards for recording, transmitting and displaying geoscience data.
4. To advise the geoscience community on the development and implications of technological advances in the field of information processing.
5. To provide a clearinghouse for information concerning activity in development of computer-processable geoscience data files.

Organization

Initially, the proposed Institute will consist of four main components (see Appendix 1):

1. Board of Directors.
2. Advisory Board.
3. Institute Director.
4. Chief Indexer.

The nine-man Board of Directors will include three Provincial members, two Federal members, two Industry members, one National Advisory Committee member, and the Institute Director (see Appendix 2). The Board will meet at least annually to approve a budget, review Institute activities, consider submissions from the Advisory Board, and approve programs and policy for the coming year.

The Advisory Board to the Institute will be the Subcommittee on Storage and Retrieval of Geological Data, a subcommittee of the National Advisory Committee on Research in the Geological Sciences. This subcommittee, the successor to the ad hoc committee, will provide technical advice and expertise to the Institute on matters relating primarily to the subject matter of the geosciences. Because of its broad representation and its historical role in formation of the Institute, it will act as an effective cross-Canada forum for the geoscience community on matters concerning computer-processable data and provide essential communication between the Institute and individual scientists.

The Director will be a full time staff member of the Institute responsible for implementing policy set by the Board of Directors and will have overall charge of Institute operations. He will be appointed by the Board of Directors.

The Chief Indexer will be a full time staff member responsible for developing, maintaining and operating the

Appendix II

ORGANIZATION OF PROPOSED CANADIAN GEOSCIENCE DATA INSTITUTE



National Index to geoscience data. He will be involved with providing services to the public, training indexers for participating organizations, and coordinating incoming contributions to the Index.

Consultants will be retained by the Board of Directors as required, to provide advice and services to supplement the knowledge and competence of the Board of Directors, the Advisory Board, and Institute staff. It is expected that consulting services will be utilized mainly in the fields of systems analysis, computer programming and related topics.

4. BENEFITS

Through Institute activities, data on the mineral resources of Canada will be made available in greater volumes, in readily accessible and usable forms, and at lower costs. The efficiency of mineral exploration programs in each Province will be increased and resource development will be stimulated. With geoscience data stored in computer-processable form throughout a national network of files, exploration and development programs will be able to focus data drawn from a wide variety of sources and disciplines on individual prospects. This will be achieved without loss of identity and ownership of data, in much the same way that a railway network allows free continent-wide passage of box cars, yet their owners maintain custody and control.

The academic and scientific communities will benefit from development of the National System through access to a greatly increased number of basic observations or measurements. Geoscientists will be able to test their hypotheses and ideas against data from many other areas. The quality of data will improve substantially as a by-product of using computer technology.

The adoption of the concepts and requirements of the National System will result in the following benefits:

1. Increased exploitation of Canadian natural resources.

2. Better exchange of data between those working in the same and related disciplines and places.
3. Availability of large quantities of data which may be selectively retrieved for further processing.
4. Encouragement of quantitative and objective approaches to the acquisition and treatment of geoscience data.
5. Encouragement of use of statistical techniques and theory in the geosciences.
6. Coherent development of computer applications in Canadian geosciences.

Of particular significance to individual Provinces, the Canadian Geoscience Data Institute will enable the resource information produced by each Province to be usefully combined with information on that Province produced by other sources. Further, exploration companies and others will be able to compare data collected from one Province with data collected elsewhere in Canada. Both benefits will provide an impetus to resource exploration and developments in each Province.

Although organizations in several Provinces have already commenced building computer-processable files within the framework of the National System as outlined in the published report, the need for an Institute to foster and coordinate this activity is essential if the National System is to realize its potential value to the geosciences and the Canadian resource industries.

Canada is in a unique position to establish a Geoscience Data Institute. The general awareness of data problems by the National Advisory Committee, their action in establishing a special committee which identified problems and recommended solutions and the momentum this activity has produced have provided the necessary background and experience to begin applying computer technology to the development of Canada's mineral resources on a realistic and potentially profitable basis.

5. BUDGET

The budget for the first year's operation is as follows:

Expenditures

Office space	\$ 3,000	
Capital equipment (office)	5,000	
Stationery, postage, telephone and other operating costs	3,000	
Salaries and related costs	40,000	
Travel	12,000	
Computer time (National Index)	15,000	
Consulting services	14,000	
Contingency	8,000	\$100,000

Financed by

Provincial Governments (see below)	50,000	
Government of Canada	50,000	\$100,000

It is proposed that the financial support from Provincial Governments of \$50,000 be divided among the contributing Provinces in a manner related to their current rate of mineral production as follows:

<u>Province</u>	<u>1967 Production*</u> <u>(millions of \$)</u>	<u>1967 Production*</u> <u>(% of Canada)</u>	<u>Proposed</u> <u>Institute</u> <u>Grant</u> <u>\$</u>
Ontario	1,192.8	27.1	13,500
Alberta	996.8	22.7	11,500
Quebec	736.0	16.7	8,500
Saskatchewan	370.0	8.4	4,000
British Columbia	360.8	8.2	4,000
Newfoundland	259.8	5.9	3,000
Manitoba	186.6	4.3	3,000
New Brunswick	89.9	2.1	1,000
Nova Scotia	79.4	1.8	1,000
Prince Edward Island	1.7	0.04	500
Total			\$50,000

* Preliminary, from Mineral Information Bulletin MR90 (1968).

Financial support for the Institute will also be sought from the mining and petroleum industries, inasmuch as they will be major beneficiaries of Institute activities. However, since the machinery for soliciting such support will take some time to prepare, it is recommended that an invitation to provide financial assistance be deferred for the present.

Looking beyond the first year's operation, the total budget can be expected to increase, particularly for the National Index. At the same time, however, revenues for services rendered will also increase and will offset rising expenditures. The long-term budgetary objective of the Institute will be to recover most of its direct expenditures through the sale of services, with the remaining fixed expenditures for overhead and research covered by Government and Industry grants.

6. PROPOSAL

In view of the pre-eminent position of the Provincial Departments of Mines and the Government of Canada as producers and custodians of geoscience information and data in Canada, and the benefits to them of participating in a coordinated geoscience information program, it is proposed:

1. That each Province and the Government of Canada endorse in principle establishment of the proposed Canadian Geoscience Data Institute and affirm its intention of providing financial support.
2. That 1 April 1969 be set as the date for commencement of Institute operations.

D.A. Sharp, Chairman,
Subcommittee on Storage and Retrieval
of Geological Data.

Appendix 2

BOARD OF DIRECTORS FOR PROPOSED CANADIAN GEOSCIENCE DATA INSTITUTE

Ex Officio Members

- *1. Deputy Minister, Dept. Energy, Mines and Resources.
Elected from and by Provincial Departments.
- *2. Deputy Minister, Dept. of Mines, Province A.
- *3. Deputy Minister, Dept. of Mines, Province B.
- *4. Deputy Minister, Dept. of Mines, Province C.
- 5. Director, Geological Survey of Canada.
- 6. Chairman, Subcommittee on Storage and Retrieval of
Geological Data (NACRGS).
- 7. Director, Canadian Geoscience Data Institute

Appointed Members

- 8. Delegate, Canadian Petroleum Association.
- 9. Delegate, Mining Association of Canada.

*Representing sources of financial support.

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26th Annual Conference Provincial Ministers of Mines Proceedings

Royal York Hotel, Toronto, Ontario
September 14-17, 1969

MINES/LIBRARY.



Ontario

**Ministry of
Natural
Resources**

P R O C E E D I N G S

TWENTY-SIXTH ANNUAL CONFERENCE

of the

PROVINCIAL MINISTERS OF MINES

SEPTEMBER 14 - 17, 1969

ROYAL YORK HOTEL

TORONTO, ONTARIO

THE HONOURABLE ALLAN F. LAWRENCE, Q.C.

MINISTER OF MINES, PROVINCE OF ONTARIO

Chairman of the Conference



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ONTARIO

DEPARTMENT OF MINES
OFFICE OF THE MINISTER

ROOM 1302, WHITNEY BLOCK
PARLIAMENT BUILDINGS
TORONTO 5, ONTARIO
TELEPHONE 365-1301

September 15, 1969

To the Honourable Ministers, the Deputy Ministers
and Delegates to the Twenty-Sixth Annual Conference of the
Provincial Ministers of Mines:

Gentlemen:

As Host-Chairman of the meetings held in Toronto on
September 14th through 17th, it is my pleasure to present here-
in the Proceedings of the Twenty-Sixth Annual Conference of the
Provincial Ministers of Mines.

I hope all who attended enjoyed the Conference and
that the discussions were instructive. On behalf of all the
Ministers, I want to take this opportunity to thank the Delegates
for their assistance and advice. The type of co-operation
exhibited provides an optimistic future for these conferences
and the Mining Industry of Canada.

Yours sincerely,

A handwritten signature in blue ink, reading "Allan F. Lawrence".

Allan F. Lawrence,
Chairman.

Dates and Places
of the
Annual Conferences
of the
Provincial Ministers of Mines

<u>Conference</u>		<u>Date</u>	<u>Place</u>
First	1945	April 14-16	Quebec, P.Q.
Second	1945	November 22-23	Toronto, Ontario
Third	1946	September 23-27	Winnipeg, Manitoba
Fourth	1947	September 3-5	Keltic Lodge, Nova Scotia
Fifth	1948	September 2-4	Jasper, Alberta
Sixth	1949	September 7-10	Fredericton, New Brunswick
Seventh	1950	September 13-16	Victoria, British Columbia
Eighth	1951	September 4-8	Saskatoon, Saskatchewan
Ninth	1952	September 15-17	Quebec, P.Q.
Tenth	1953	September 16-18	Niagara Falls, Ontario
Eleventh	1954	September 20-22	Winnipeg, Manitoba
Twelfth	1955	September 12-14	Keltic Lodge, Nova Scotia
Thirteenth	1956	September 10-12	Lake Louise, Alberta
Fourteenth	1957	September 4-6	Vancouver, British Columbia
Fifteenth	1958	September 3-5	St. Andrews, New Brunswick
Sixteenth	1959	September 14-16	Regina, Saskatchewan
Seventeenth	1960	October 16-19	Quebec, P.Q.
Eighteenth	1961	September 17-20	Toronto, Ontario
Nineteenth	1962	September 16-18	Winnipeg, Manitoba
Twentieth	1963	September 15-18	Halifax, Nova Scotia
Twenty-first	1964	September 6-9	Banff, Alberta
Twenty-second	1965	September 12-15	Victoria, British Columbia
Twenty-third	1966	September 18-21	Saint John, New Brunswick
Twenty-fourth	1967	September 17-20	Regina, Saskatchewan
Twenty-fifth	1968	September 15-18	Quebec City, P.Q.
Twenty-sixth	1969	September 14-17	Toronto, Ontario

PROVINCIAL MINISTERS OF MINES AND DEPUTY MINISTERS AT THE
TIME OF THE TWENTY-SIXTH ANNUAL CONFERENCE OF THE MINISTERS OF MINES

M I N I S T E R S

Honourable William Callahan	Minister of Mines, Agriculture and Resources, Newfoundland and Labrador.
Honourable Percy Gaum	Minister of Mines, Nova Scotia.
Honourable Cecil A. Miller	Minister of Industry and Natural Resources, Prince Edward Island.
Honourable William R. Duffie	Minister of Natural Resources, New Brunswick.
Honourable Paul-E. Allard	Minister of Natural Resources, Quebec.
Honourable Allan F. Lawrence	Minister of Mines, Ontario.
Honourable Leonard S. Evans	Minister of Mines and Natural Resources, Manitoba.
Honourable A. C. Cameron	Minister of Mineral Resources, Saskatchewan.
Honourable A. E. Patrick	Minister of Mines and Minerals, Alberta.
Honourable Frank Richter	Minister of Mines and Petroleum Resources, British Columbia.

DEPUTY MINISTERS

Mr. Frederick Gover	Newfoundland and Labrador
Dr. J. P. Nowlan	Nova Scotia
Mr. P. A. Murnaghan	Prince Edward Island
Mr. R. L. Bishop	New Brunswick
Dr. P. E. Auger	Quebec
Mr. D. P. Douglass	Ontario
Mr. W. W. Mair	Manitoba
Mr. J. T. Cawley	Saskatchewan
Mr. H. H. Somerville	Alberta
Mr. K. B. Blakey	British Columbia



Provincial Ministers of Mines and Deputy Ministers

Seated Left to Right

Hon. Paul-E. Allard, Quebec; Hon. Percy Gaum, Nova Scotia; Hon. William Callahan, Newfoundland and Labrador; Hon. A. C. Cameron, Saskatchewan; Hon. Allan F. Lawrence, Ontario; Hon. William R. Duffie, New Brunswick; Hon. A. E. Patrick, Alberta; and Hon. Frank Richter, British Columbia.

Standing Left to Right

Jack Roper, Manitoba; J. Gilbert, Quebec; Paul Auger, Quebec; Jim Nowlan, Nova Scotia; Fred Gover, Newfoundland and Labrador; Jim Cawley, Saskatchewan; Don Douglass, Ontario; Jack Smith, New Brunswick; Hubert Samerville, Alberta; and Ken Blakey, British Columbia.

CONFERENCE ORGANIZING COMMITTEE

C h a i r m a n

Honourable Allan F. Lawrence, Q.C.
Minister of Mines

Deputy Chairman and Co-ordinator

D. P. Douglass
Deputy Minister of Mines

Secretary

Miss J. K. Livingston

Sub-Committees

Technical Programme	R. L. Smith J. E. Thomson
Hotel and Entertainment	G. T. Stevens
Transportation	R. V. Scott
Registration and Secretarial Assistance	B. C. Lee
Press and Public Relations	L. C. Brown
Printing and Proceedings	F. W. Love
Ladies Liaison	Miss J. K. Livingston
Ladies Committee	Mrs. Allan F. Lawrence Mrs. D. P. Douglass

P R O G R A M M E

Sunday, September 14, 1969

2:00 p.m. to 5:00 p.m.	Advance Meetings of Continuing Committees
8:00 p.m. to 10:00 p.m.	Minister's initial Reception - Royal Ontario Museum

Monday, September 15, 1969

9:00 a.m. to 5:00 p.m.	Information Desk
9:00 a.m. to 10:30 a.m.	Meeting of Ministers and Deputy Ministers
10:30 a.m. to 12:00 noon	Opening Plenary Session, Ballroom
12:00 noon to 2:00 p.m.	Luncheon, Concert Hall, Convention Floor
2:00 p.m. to 5:00 p.m.	Committee Meetings
3:00 p.m. to 4:30 p.m.	Ladies - Tour of Government Complex and Tea in the Lieutenant Governor's Suite
5:00 p.m. to 6:00 p.m.	Meeting of Ministers and Deputy Ministers
6:30 p.m. to 10:00 p.m.	Reception, Dinner and Tour of the Centennial Centre of Science and Technology
8:30 p.m.	Committee Meetings (if required)

Tuesday, September 16, 1969

9:00 a.m. to 5:00 p.m.	Information Desk
9:00 a.m. to 12:00 noon	Committee Meetings
11:15 a.m. to 2:30 p.m.	Ladies - Excursion and Luncheon, St. Lawrence Centre of the Arts
12:00 noon to 2:00 p.m.	Private Luncheon, Ministers and Deputy Ministers
2:00 p.m. to 5:00 p.m.	Committee Meetings
5:00 p.m. to 6:00 p.m.	Meetings of Ministers and Deputy Ministers
6:30 p.m. to 10:30 p.m.	Reception and Conference Dinner, Concert Hall, Convention floor
10:30 p.m.	Meeting of Ministers and Deputy Ministers.

Wednesday, September 17, 1969

9:00 a.m. to 12:00 noon	Information Desk
9:00 a.m. to 10:30 a.m.	Meeting of Ministers and Deputies
10:00 a.m. to 11:00 a.m.	Ladies - Coffee Hour, Toronto- Dominion Centre
10:30 a.m. to 12:00 noon	Closing Plenary Session
12:45 p.m. to 5:00 p.m.	Post Conference Tour, one of- 1. Nuclear Power Plant, Pickering 2. Sheridan Park Research Complex 3. Oil Refinery

LIST OF REGISTERED DELEGATES AND OBSERVERS
AT THE MINES MINISTERS CONFERENCE

A L B E R T A

DELEGATES

Somerville, H.H.	Deputy Minister of Mines and Minerals, Alberta.
Abercrombie, R.J.	Independent Petroleum Assoc. of Canada
Austin, M.E.	Sun Oil Company
Blair, S.R.	Alberta and Southern Gas Co. Ltd.
Currie, J.H.	Tenneco Oil & Minerals Ltd.
Fabro, E.	Coleman Collieries Ltd.
Frocklage, R.J.	Canadian Petroleum Association
Govier, G.W.	Oil & Gas Conservation Board
Griswold, R.E.	Texaco Exploration Company
Grossman, W.L.	Shell Canada Limited
Harvie, D.	Canadian Fina Oil Limited
Holubowich, F.J.	Dept. of Mines and Minerals
Jordan, D.R.	Dept. of Mines and Minerals
Melson, P.	Oil and Gas Conservation Board
McKinnon, F.A.	Triad Oil Co.
Mitchell, D.E.	Great Plains Development Co. of Canada, Ltd.
Nielsen, A.R.	Mobil Oil Canada, Ltd.
Proctor, J.W.	Canadian Petroleum Assoc.
Riva, W.	The Canmore Mines Ltd.
Roark, G.E.	Husky Oil Ltd.
Seaton, R.A.	Dept. of Mines and Minerals
Stevens, W.I.	Gulf Oil Canada Ltd.
Taylor, J.M.	Canadian Pacific Oil and Gas Ltd.

OBSERVERS

Bailey, R.B.	Canadian Reserve Oil and Gas Ltd.
Booth, H.	Pembina Pipe Line Ltd.
Bohme, V.E.	Oil & Gas Conservation Board
Boyd, K.J.	Texaco Exploration Company
Bredin, E.M.	Mobil Oil Canada, Ltd.
Browning, J.M.	Tenneco Oil and Minerals Ltd.
Crough, E.M.	Canadian Petroleum Association
De Yaeger, J.	Alberta-Northwest Chamber Mines-Oils-Resources
Doig, I.M.	Canadian Petroleum Association
Fuller, K.W.	Oil & Gas Conservation Board

A L B E R T A (cont'd)

Hriskevich, M.E.	The Alberta Society of Petroleum Geologists
Henderson, G.G.L.	Calgary
Holland, G.A.	Gulf Oil Canada Ltd.
Leslie, G.A.	Trans-Canada Pipe Lines Ltd.
Lewis, M.E.	Imperial Oil Limited
MacKenzie, H.N.	King Resources Limited
MacNicol, J.M.	Canadian Petroleum Association
Meeker, J.C.	Amoco Canada Petroleum Co. Ltd.
Porter, J.D.	Canadian Association of Oilwell
Rudolph, J.C.	Banff Oil Ltd.
Schmidt, P.G.	Dept. of Mines and Minerals
Swann, R.H.	Canadian Fina Oil Limited
Theriault, G.H.	Atlantic Richfield Company
Webb, C.T.	Canadian Pacific Oil and Gas Limited

B R I T I S H C O L U M B I A

DELEGATES

Blakey, K.B.	Deputy Minister of Mines and Petroleum Resources, B.C.
Axford, D.W.	Mobil Oil Canada, Ltd.
Balsley, G.E.	Kaiser Resources Ltd.
Dingle, W.B.	Imperial Oil Limited
Dingley, A.J.	Dept. of Mines and Petroleum Resources
Douglas, R.P.	Outside Mines, Cominco Ltd.
Ebbels, J.C.	Shell Canada Limited
Gallant, B.T.	King Resources Co.
Hedley, M.S.	Dept. of Mines and Petroleum Resources
Hope-Ross, W.	Placid Oil Company
Ingram, W.L.	Dept. of Mines and Petroleum Resources
Little, J.D.	Placer Development Ltd.
McGillvray, G.B.	Canadian Petroleum Assoc.
McPherson, J.L.	Placer Development Ltd.
Mitchell, C.H.	Mining Association of British Columbia
Morris, J.E.	Kaiser Resources Limited
Moss, R.E.	Petroleum and Natural Gas
Olson, S.G.	Hudson's Bay Oil & Gas Co. Ltd.

B R I T I S H C O L U M B I A (cont'd)

Peck, J.W.	Dept. of Mines and Petroleum Resources
Reynolds, P.M.	Bethlehem Copper Corp. Ltd.
Rothman, S.M.	Mining Assoc. of British Columbia
Steeves, K.	Bethlehem Copper Corp. Ltd.
Strother, R.	Husky Oil Ltd.
Tomczak, J.F.	Dept. of Mines and Petroleum Resources
Tough, W.J.	Falconbridge Nickel Mines Ltd.
White, L.G.	British Columbia and Yukon Chamber of Mines
Wilson, W.	Dept. of Mines and Petroleum Resources.

OBSERVER

Kelly, A.M.	B. C. Research
-------------	----------------

M A N I T O B A

DELEGATES

Roper, J.S.	Director of Mines, Dept. of Mines and Natural Resources, Manitoba
Bloy, H.	The Mining Assoc. of Manitoba Inc.
Brown, F.	Dynamic Petroleum Products Ltd.
Cain, P.A.	Sherritt Gordon Mines Ltd.
Clark, W.	Aquitaine Company of Canada Ltd.
Clarke, J.W.	Pascar Oils Limited
Gamey, F.S.	Dept. of Mines and Natural Resources
Gregory, R.G.	Canadian National Railways
Hegion, S.	Hegion & Associates Ltd.
Lebel, J.L.	Chevron Standard Limited
McCreedy, J.	International Nickel Co. of Canada Limited
McKenzie, H.A.	Hudson Bay Mining & Smelting Co. Ltd., T.D.C.
Morgan, T.	Dept. of Mines and Natural Resources
Parres, A.L.	Straus Exploration Inc.
Perry, C.A.	Treasury Department
Richards, J.S.	Dept. of Mines and Natural Resources
Russell, J.D.	Dept. of Mines and Natural Resources
Swanson, A.G.	Dynamic Petroleum Products Ltd.

N E W B R U N S W I C K

DELEGATES

Smith, J.C.	Asst. Deputy Minister, Dept. of Natural Resources, N.B.
Baker, R.D.	Heath Steele Mines Limited
Beliveau, L.C.	Nigadoo River Mines Limited
Cooper, G.E.	Noranda Exploration Co. Ltd.
Coughlan, E.K.	Dept. of Natural Resources
Hodgson, E.C.	Dept. of Energy, Mines and Resources
Knaebel, J.B.	The Anaconda Company
McCullough, J.G.	Heath Steele Mines Limited
Moore, G.N.	Cominco Limited
Potter, R.R.	Dept. of Natural Resources
Rowe, W.S.	Brunswick Mining & Smelting Corp.
Scott, C.E.	Miramichi Lumber Company (Ltd.)
Selwyn, J.C.	Canada Cement Company
Seymour, W.L.	Anaconda American Brass Co.
Sullivan, C.J.	Kennco Explorations (Canada) Ltd.
Warren, R.W.	Dept. of Natural Resources

N E W F O U N D L A N D

Gover, F.	Deputy Minister, (Mines) Department of Mines, Agriculture and Resources
Abdnor, J.S.	Pickands Mather and Company
Graham, E.P.	Brinex Ltd.
Hillier, H.	Dept. of Mines, Agriculture and Resources
Howse, C.K.	Iron Ore Co. of Canada
Kaczkowski, J.	Advocate Mines, Newfoundland Representative
Kipnis, N.	Dept. of Mines, Agriculture and Resources
McKillop, J.	Dept. of Mines, Agriculture and Resources
Neil, W.	Mining Tax Assessor

N O V A S C O T I A

DELEGATES

Nowlan, J.P.	Deputy Minister, Department of Mines, Nova Scotia
Blackmore, G.	Devco
Boone, A.E.	Joy Manufacturing Co.
Brown, E.D.	National Gypsum (Canada) Ltd.
Burchell, D.G.	Bras d'Or Coal
DeWolf, E.G.	Domtar Chemicals
Dexter, T.W.	Department of Mines
Goudge, M.G.	Department of Mines
Marsh, W.H.	District 26, U.M.W. of A.
Morgan, J.H.	Consultant
Stuart, G.C.	Hudson's Bay Oil & Gas
Townsend, C.F.	Department of Mines
Wahl, G.J.	Murphy Oil
Walker, G.	Department of Mines
Wright, J.D.	Department of Mines

OBSERVER

Morris, R.	Retired
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O N T A R I O

DELEGATES

Douglass, D.P. ✓	Deputy Minister, Department of Mines, Ontario
Anderson, J.B. ✓	McIntyre Porcupine Mines Ltd.
Arnold, W.P.	Rio Algom Mines Limited
Blais, R.A.	Geological Association of Canada
Bonus, J.L.	Mining Association of Canada
Brittain, W.D.	Department of Energy & Resources
Brown, L.C. ✓	Department of Mines
Brown, L.I.	Canada Petroleum Association
Cooper, M.A.	Falconbridge Nickel Mines
Dutton, V.I.L. ✓	Gas & Petroleum Assoc. of Ontario
Godin, J.K. ✓	McIntyre Porcupine Mines Ltd.
Harrison, J.M.	C.I.M.M.
Keevil, N.B.	Copperfields Mining Corp.
Kostuik, J. ✓	Mining Association of Canada
Lee, B.C. ✓	Department of Mines
Lochhead, D.R. ✓	Falconbridge Nickel Mines Limited
Lord, R.D.	Rio Algom Mines Limited

O N T A R I O (cont'd)

Mackay, A.E. ✓	Ontario Petroleum Institute
Mollison, T.D.	Texas Gulf Sulphur Company
Perry, E.A. ✓	Ontario Mining Association
Pigott, J.A.	Ontario Division, Inco
Rankin, J.J. ✓	Prospectors & Developers Assoc.
Redpath, J.B.	Dome Mines Limited
Row, W. ✓	Kerr Addison
Schmitt, D.E.G.	Noranda Mines
Scott, R.V.	Department of Mines
Sharp, D.A.	Department of Energy & Resources
Smith, R.L.	Department of Mines
Stovel, J.H.	Kerr Addison Mines Ltd.
Tapp, E.G.	C.I.M.M.
Thomson, J.E.	Department of Mines
Todd, F.F. ✓	International Nickel Co. of Canada
Worley, J.E.	Algoma Ore Division

OBSERVERS

Axford, M.J.	Department of Mines
Bartley, M.W.	Geological Consultant
Barrett, C.M.	Department of Mines
Broderick, R.N.	International Nickel Co.
Burns, R.E.B.	Department of Mines
Coome, A.W.	Falconbridge Nickel Mines Limited
Craig, D.B.	International Nickel of Canada
Davis, H.F.	Department of Mines
Ford, D.	Noranda
Foster, D.	Noranda
Greenlee, J.R.	Hanna Mining Co.
Hallbauer, R.E.	Copperfields Mining Corp.
Hughes, J.	Department of Mines
Livingston, J.K. (Miss)	Department of Mines
Love, F.W.	Department of Mines
Matten, E.E.	Department of Mines
Matthews, H.G.	Department of Mines
McFarland, J.F.	Department of Mines
McKnight, W.V.	Department of Mines
Moddle, D.A.	Department of Mines
Moore, E.A.	Department of Indian Affairs
Parker, R.D.	Retired
Pye, E.G.	Department of Mines
Queen, J.A.	Department of Mines
Rickaby, H.C.	Retired

O N T A R I O (cont'd)

Smylie, R.T.	Consultant
Stevens, G.T.	Department of Mines
Stoddart, J.A.	Department of Mines
Tremblay, P.	Department of Mines
Wansbrough, V.C.	Retired

P R I N C E E D W A R D I S L A N D

DELEGATE

Darlington, D.	Department of Industry & Natural Resources
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Q U E B E C

DELEGATES

Auger, P.E.	Deputy Minister, Department of Natural Resources, Quebec
Bérubé, H.S.	Noranda Mines Limited
Carbonneau, C.	Soquem
Dufour, R.	Polytechnical School
Filteau, P.A.	Association of Asbestos Mines
Gilbert, J.E.	Dept. of Natural Resources
Godbout, A.	Dept. of Industry and Commerce
Grenier, P.E.	Dept. of Natural Resources
Lafontaine, M.O.	Dept. of Natural Resources
Langlois, L.G.	Association of Mines and Metals
Laurin, A.F.	Dept. of Natural Resources
Olvier, C.A.	Dept. of Natural Resources
Paquin, P.	Noranda Mines Limited
Paradis, G.	Dept. of Natural Resources
Plasse, R.	East Malartic Mines Ltd.
Pouliot, D.	Dept. of Natural Resources
Ross, R.R.	Quebec-Cartier Mining Company
Skidmore, W.B.	Dept. of Natural Resources
St. Onge, V.	Quebec-Cartier Mining Co.
Taschereau, M.E.	Gaspe Copper Mines Limited
Tetu, J.	Dept. of Natural Resources

OBSERVERS

Dery, C.	Dept. of Natural Resources
Lampron, D.	Dept. of Industry and Commerce
McKee, W.	Canadian Industries Ltd.

Q U E B E C (cont'd)

Messel, M.J.	Lake Asbestos of Quebec Ltd.
Michaud, M.	Canadian National Railway
Oughtred, W.W.	Asbestos Corporation Ltd.
Peacock, G.E.	Sigma Mines Quebec Ltd.
Simard, P.P.	Dept. of Natural Resources
Stierli, R.J.	Quebec-Cartier Mining Co.
Taillon, J.	Dept. of Intergovernment Affairs
White, F.T.M.	McGill University

S A S K A T C H E W A N

DELEGATES

Cawley, J.T.	Deputy Minister, Department of Mineral Resources
Ballachey, A.G.	Noranda Mines Limited
Barroll, A.E.	Mobil Oil Canada Limited
Basserman, R.R.	Saskatchewan Mining Assoc.
Cameron, G.W.	Canadian Petroleum Assoc.
Davidson, C.R.	Alwinsal Potash of Canada Ltd.
Erbath, W.	Alwinsal Potash of Canada Ltd.
Furlong, D.B.	Saskatchewan Power Corporation
Fuller, D.L.	Producers Pipe Line
Lawton, M.D.	Anglo-Rouyn Mines Limited
Mode, D.H.	Department of Mineral Resources
Murray, R.C.	Amerada Hess Corporation
Smith, D.G.	Department of Mineral Resources
Stuart, W.D.	Trans-Canada Pipelines
Tyerman, D.M.	McPherson, Leslie & Tyerman
Westfall, M.F.	Husky Oil Limited
Lindberg, R.D.	International Minerals & Chemical Corporation
Hurdle, B.E.	Cominco Limited
Ediger, N.M.	Gulf Minerals
Earley, J.W.	Gulf Minerals

FEDERAL GOVERNMENT

OBSERVERS

Blanchard, J.E.	Dept. of Energy, Mines & Resources
Borden, R.L.	Chief, Energy, & Mineral Statistics
Buck, K.	Director of Mineral Resources
Burk, C.F.	Geological Surveys
Drolet, J.P.	Dept. of Energy, Mines & Resources
Elver, R.B.	Dept. of Energy, Mines & Resources
Forman, S.A.	Dept. of Energy, Mines & Resources
Fortier, Y.O.	Dept. of Energy, Mines & Resources
Hon. Greene, J.J.	Minister Energy Mines & Resources
Homulos, S.	Chief Mining Eng.
Isbister, C.M.	Dept. of Energy, Mines and Resources
Hon. Lang, O.E.	Minister, Energy, Water Resources
Laurence, G.C.	Atomic Energy Control
Lusick, D.	D.B.S.
Mayhew, W.C.	Energy, Mines & Resources
McLeod, R.R.	
Moore, E.A.	Dept. of Indian Affairs
Pickard, A.F.	Science Council
Ratushny, G.J.	
Scott, J.S.	Dept. of Energy, Mines & Resources
Smith, C.H.	Science Council
Symons, A.J.	Mineral Statistics
Wilkerson, W.	Energy, Mines & Resources
Wilson, H.	Dept. of Energy, Mines & Resources

LIST OF LADIES PRESENT

A L B E R T A

Somerville, Mrs. H. H.	Bailey, Mrs. R. B.
Austin, Mrs. M. E.	Booth, Mrs. H.
Blair, Mrs. S. R.	Bredin, Mrs. E. M.
Currie, Mrs. J. H.	Browning, Mrs. J. M.
Fabro, Mrs. E.	Crough, Mrs. E. M.
Frocklage, Mrs. R. J.	De Yaeger, Mrs. J.
Griswold, Mrs. R. E.	Doig, Mrs. I. M.
Grossman, Mrs. W. L.	Fuller, Mrs. K. W.
Harvie, Mrs. D.	Hriskevich, Mrs. M. E.
Holubowich, Mrs. F. J.	Leslie, Mrs. G. A.
McKinnon, Mrs. F. A.	Lewis, Mrs. D. E.
Nielsen, Mrs. A. R.	MacNicol, Mrs. J. M.
Proctor, Mrs. J. W.	Meeker, Mrs. J. C.
Seaton, Mrs. R. A.	Porter, Mrs. J. D.
Stevens, Mrs. W. I.	Swann, Mrs. R. H.
Taylor, Mrs. J. M.	Theriault, Mrs. G. H.
	Webb, Mrs. C. T.

B R I T I S H C O L U M B I A

Axford, Mrs. D. W.
Dingle, Mrs. W. B.
Ebbels, Mrs. J. C.
Hope-Ross, Mrs. W.
McGillvray, Mrs. G. B.
Morris, Mrs. J. E.
Rothman, Mrs. S. M.
Steeves, Mrs. K.
Strother, Mrs. R.
Tomczak, Mrs. J. F.

M A N I T O B A

Roper, Mrs. J. S.
Hegion, Mrs. S.
McCreedy, Mrs. J.
McKenzie, Mrs. H. A.
Parres, Mrs. A. L.

N E W B R U N S W I C K

Baker, Mrs. R. D.
Beliveau, Mrs. L. C.
Cooper, Mrs. G. E.
Hodgson, Mrs. E. C.
McCullough, Mrs. J. G.
Moore, Mrs. G. N.
Scott, Mrs. C. E.
Seymour, Mrs. W. L.
Sullivan, Mrs. C. J.

N E W F O U N D L A N D

Abdnor, Mrs. J. S.
Graham, Mrs. E. P.
Howse, Mrs. C. K.

N O V A S C O T I A

Nowlan, Mrs. J. P.
Blackmore, Mrs. G.
Boone, Mrs. A. E.
Brown, Mrs. E. D.
Burchell, Mrs. D. G.
Morgan, Mrs. J. H.
Morris, Mrs. R.
Stuart, Mrs. G. C.
Walker, Mrs. G.

O N T A R I O

Douglass, Mrs. D. P.
Anderson, Mrs. J. B.
Arnold, Mrs. W. P.
Bonus, Mrs. J. L.
Brittain, Mrs. W. D.
Brown, Mrs. L. C.
Brown, Mrs. L. I.

Axford, Mrs. M. J.
Barrett, Mrs. C. M.
Burns, Mrs. R. E. B.
Coome, Mrs. A. W.
Craig, Mrs. D. B.
Davis, Mrs. H. F.
Hughes, Mrs. J.

O N T A R I O (cont'd)

Dutton, Mrs. V. I. L.
Godin, Mrs. J. K.
Kostuik, Mrs. J.
Lee, Mrs. B. C.
Lochhead, Mrs. D. R.
Lord, Mrs. R. D.
Livingston, Miss J. K.
Mackay, Mrs. A. E.
Mollison, Mrs. R. D.
Schmitt, Mrs. D. E. G.
Scott, Mrs. R. V.
Sharp, Mrs. D. A.
Smith, Mrs. R. L.
Stoddart, Mrs. J. A.
Tapp, Mrs. E. G.

Love, Mrs. F. W.
Matten, Mrs. E. E.
McFarland, Mrs. J. F.
McKnight, Mrs. W. V.
Pye, Mrs. E. G.
Perry, Mrs. E. A.
Pigott, Mrs. J. A.
Queen, Mrs. J. A.
Redpath, Mrs. J. B.
Rickaby, Mrs. H. C.
Thomson, Mrs. J. E.
Todd, Mrs. F. F.
Tremblay, Mrs. P.
Wansbrough, Mrs. V. C.
Worley, Mrs. J. E.

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Q U E B E C

Auger, Mrs. P. E.
Berube, Mrs. H. S.
Filteau, Mrs. P. A.
Godbout, Mrs. A.
Lafontaine, Mrs. M. O.
Langlois, Mrs. L. G.
Paquin, Mrs. P.
Skidmore, Mrs. W. B.
Taschereau, Mrs. M. E.

Lampron, Mrs. D.
McKee, Mrs. W.
Messel, Mrs. M. J.
Michaud, Mrs. M.
Oughtred, Mrs. W. W.
Olvier, Mrs. C. A.
Peacock, Mrs. G. E.
White, Mrs. F. T. M.

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S A S K A T C H E W A N

Cawley, Mrs. J.T.
Ballachey, Mrs. A.G.
Barroll, Mrs. A.E.
Basserman, Mrs. R.R.
Cameron, Mrs. G.W.
Davidson, Mrs. C.R.
Erbath, Mrs. W.
Fuller, Mrs. D.L.

Hurdle, Mrs. B.E.
Lawton, Mrs. M.D.
Murray, Mrs. R.C.
Stuart, Mrs. W.D.
Tyerman, Mrs. D.M.
Westfall, Mrs. M.F.
Lindberg, Mrs. R.D.

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FEDERAL GOVERNMENT

Isbister, Mrs. C. M.
McLeod, Mrs. R. R.

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OPENING PLENARY SESSION - MINES MINISTERS CONFERENCE

MONDAY, SEPTEMBER 15, 1969

C h a i r m a n
Honourable Allan F. Lawrence,
Minister of Mines,
Province of Ontario.

Gentlemen:

In calling this, the 26th annual conference of the Provincial Mines Ministers to order, I want to thank every one of you for having taken the time from your very busy lives to be here this week.

The fact that you have done so, just as for the last quarter century you or men like you have been doing so, can mean only one thing---you are satisfied that these annual conferences serve a real purpose in consolidating opinion and action among the governments concerned in areas where it should be consolidated.

Those of you who are here as top-level representatives of the mineral industry must also be convinced that your time is well spent. Speaking as a representative of government I can assure you that the counsel you are able to give us through the committees is of great value to us---and I can only hope that our response to it proves to be of comparable value to the industry.

Those of you who are attending your first Mines Ministers Conference would, perhaps, find a quick run-down of the ground rules helpful. I am sure that by Wednesday you will all understand what I mean when I say that this is always a "working" conference. A great deal of the most productive work is done in the six committees and the sub-committees to which the delegates have been assigned. The committee-chairmen---all deputy ministers---then have the onerous job of preparing their summary reports and recommendations for study by the ministers before they are presented at the closing plenary session Wednesday morning.

These chairmen who have the double-barrelled responsibility of running their committee meetings and attending the numerous meetings of the ministers are unquestionably the hardest-working people here and they certainly deserve a special vote of commendation.

This year, really for the first time, the conference has been opened for news coverage. This step was taken with the unanimous consent of the ministers and so I am glad to see that the press table is so well filled. I will ask that you gentlemen observe the following rules and arrangements that have been made for your guidance.

You are welcome to attend the plenary sessions, meal functions and whatever entertainment might be provided during the conference. But the committee sessions---at which the nuts and bolts of various problems are sorted out---will be held in camera. I can assure you that there would be very little usable copy originate in these meetings anyway.

However a press room and a radio-television room have been set up and our P.R. staff members are willing and anxious to give you every possible help in setting up interviews, arranging press conferences, providing photographic services and anything else they can do to make your job easier.

That is a very incomplete outline of the way the conference is to run. I think the printed program will serve to fill in any gaps I may have left out in my exposition.

I have an idea that most of you will be glad to hear that formal speech-making is to be kept to a minimum. At this morning's session, for example, we have decided to dispense with the key-note address which has been a feature of several of these conferences in other years.

Now I only want to extend a very warm welcome to all of you who have come from all parts of Canada. As I said before, you'll find that this is a working conference but I hope that you will find enough unscheduled time while you are here to sample the pleasures of my native city.

REPLY TO THE BRIEF PRESENTED TO THE
GOVERNMENT OF CANADA
FOLLOWING THE 25TH ANNUAL CONFERENCE OF THE
PROVINCIAL MINISTERS OF MINES
BY
THE HONOURABLE J. J. GREENE
MINISTER OF ENERGY, MINES AND RESOURCES

September 15, 1969

On behalf of the Government of Canada, I am again pleased to reply to the Brief submitted by Provincial Ministers of Mines following the 25th annual conference held last year in Quebec City. I remember with satisfaction not only the gracious hospitality afforded to me and other federal observers by our hosts, but also the objectives and activities of your conference in which mineral policy matters of interprovincial and national concern are considered. This congenial exchange of views is an essential process for assuring that present and future matters of mutual concern and interest are handled in the most appropriate manner and with understanding.

The recommendations in your Brief have been given careful consideration. The items are dealt with in the order in which they appear in your Brief for purposes of continuity.

EXPLORATION AND DEVELOPMENT

1. In response to our mutual interest for geoscience data expressed at the 25th Conference, the Geological Survey of Canada in October 1968 established an interim Secretariat for Geoscience Data which, in collaboration with the provinces, continued the work of implementing a national system for storage and retrieval of geological data. This action follows a recommendation of the Provincial Ministers of Mines that the Geological Survey of Canada carry on this work pending establishment of a permanent organization such as the proposed Canadian Geoscience Data Institute, described to you in my reply of last year. The Secretariat has included further study of the proposed Institute in its program and I have forwarded copies of its report on this matter to the Honourable A. F. Lawrence, Minister of Mines for Ontario. The report emphasizes the need for an independent Institute and recommends a course of action by the 26th Conference of the Provincial Ministers of Mines and by the Federal Government that, if approved, will lead to establishment of the Canadian Geoscience Data Institute by April 1, 1970.

2. The second topic in the Brief, under the heading "Exploration and Development", is control of uranium exploration and production. Past discussion of this subject has been confused by some misunderstandings, and I would like to begin, therefore, by recalling some relevant points.

The Atomic Energy Control Act, by which the uranium and thorium mines were brought under federal jurisdiction, was passed, to insure, inter alia, that Canada could "participate effectively in measures of international control of atomic energy which may

hereafter be agreed upon." These measures call for control not only of the sale and export of uranium, but of many other aspects of the possession, storage, care and inventory and disposal of that material.

The Atomic Energy Control Act was not a temporary war measure. It was conceived and enacted after the end of the last war to provide for necessary control of atomic energy during peace as well as war. Particularly relevant in this regard is the Non-Proliferation Treaty which was recently signed and ratified by Canada. Under the Treaty, Canada's nuclear activities will be subject to international inspection. Such inspection will not extend to actual mining and milling operations but will extend to inventory and shipping of mill products. A federal control over such activities is therefore essential not only to satisfy the international inspectorate but also to minimize any inconvenience to Canadian operators from such inspection.

The federal government appreciates the natural desire of the provinces to exercise control over uranium mining comparable to that which they apply to other mining activities. We want to go as far as possible to meet your wishes in this regard and yet retain a measure of federal control so that Canada can fulfill her international role and obligations. Indeed, the present regulatory system established by the Board in no way hinders or limits provisions to ensure that the uranium and thorium mines conform to the same rules as other mines which are under provincial jurisdiction. For example, uranium mines pay taxes to the provincial governments on the same basis as other mines and they are subject to the same provincial regulations regarding lease of crown land, staking and legislating affecting corporation structure, as other mines in the same province.

Moreover, uranium mines are excluded from the application of the Canada Labour (Safety) Code. The Code itself states that it is "subject to any other Act of Parliament of Canada and Regulations thereunder" and hence subject to the Atomic Energy Control Act and Regulations, which assign regulatory authority in uranium mining to the Atomic Energy Control Board. Under the licence issued by the Board, uranium mines are required to conform to the same standards and principles of safety as other mines in the same province and provincial officials carry out the necessary inspections. Even in the field of radiation protection, where the basic regulations have been issued by the Atomic Energy Control Board, designated provincial officers can be authorized to inspect operations in this regard and to issue such directions as they consider necessary to ensure that radiation safety problems do not result, not only for the workers themselves, but also for members of the general public.

While your Brief expressed your continued concern "with the implications of joint and overlapping control covering uranium exploration and production programmes", I was pleased to note that it also recognized "the necessity of control by the federal government covering the sale and export of uranium and thorium". You will be aware that for some time we have been reviewing our policy with respect to Canadian exports of uranium, and that, in my absence, the Acting Minister made a statement on this subject in the House of Commons on June 19, 1969. Our policy continues to be based on the use of uranium and nuclear energy for peaceful purposes, as reflected in Canada's ratification of the Non-Proliferation Treaty which I mentioned earlier. One of the many aspects of concern to us in this regard is the adequacy of our energy resources over time, thus necessitating knowledge on our part of such things as reserves, rates of exploitation and the extent and results of exploration programmes.

The Atomic Energy Control Board and officials of my Department have been devoting considerable thought to the interests of the provinces in these matters and to the practical means by which these interests can be protected. The Board has had recent discussions with the Deputy Ministers of Mines of some of the provinces. These discussions have been very helpful in giving us a clearer understanding of provincial needs. In this connection, I have instructed officials of my Department to review with the Board the present reporting system with a view to minimizing the amount of information requested from companies, while still meeting national uranium policy objectives.

The AECB, would like to assure you that it will hereafter consult with provincial departments in advance regarding any important action affecting their interests. The provinces, therefore, will participate fully in the approval of mining operations in their own territories.

ROYALTIES, TAXATION AND TARIFFS

1. On matters related to the Royal Commission on Taxation (Carter Report), you may be assured that my colleagues are aware of your concern that the adoption of the recommendations of the Carter Commission would have serious adverse effects on the mining and petroleum industries.

I might add that the federal government intends to present proposals for reform of federal income taxes in a White Paper in the near future. Steps have been taken to establish a Parliamentary Committee to study the proposed tax reform measures. The Minister of Finance has indicated that Provincial tax authorities and other interested parties will have an opportunity of presenting their views on the proposed changes in our tax laws.

2. With reference to depletion allowance for sodium sulphate deposits, the Department of Finance has denied all recent request for any extension of benefits under the Income Tax Act until the examination by Parliament of the general proposals for tax reform has been completed. Consequently further consideration of extension of the depletion allowance to mining operations based upon sodium sulphate deposits must be deferred until that time.

The above response to your resolutions is respectfully presented.

The Honourable J. J. Greene
Minister of Energy, Mines and Resources

Communique for Presentation to Closing Plenary
Session Mines Ministers' Conference

The Ministers are grateful to the Conference Committees for the thorough manner in which they have considered the matters placed before them for consideration.

I would therefore express the Ministers' appreciation to:

Committee #1 on Problems Relating to Mining
Operations

Co-Chairmen - D. P. Douglass
F. Gover

Committee #2 on Problems Relating to Exploration
and Development

Co-Chairmen - Dr. P. E. Auger
Dr. P. E. Grenier

Committee #3 on Royalties, Taxation and Tariffs'

Co-Chairmen - K. B. Blakey
Dr. J. C. Smith

Committee #4 The Coal Committee

Chairman - Dr. J. P. Nowlan

Committee #5 on Petroleum and Natural Gas

Chairman - H. H. Sommeville
Dep. Chairman - M. J. Gobert who was
unavoidably absent.

Committee #6 on Education and Manpower

Co-Chairmen - J. T. Cawley
J. S. Roper who replaced
W. W. Mair who was un-
avoidably absent.

The essential function of the Conference Committees is to be advisory to the Ministers, and the Ministers value their advice.

The Committees in the performance of their function, have provided the Ministers with much valuable advice and information. They have also made recommendations for ministerial action, and on the basis of these recommendations the Ministers have approved the following resolutions:

- RESOLUTION #1: That the Ministers of Mines recommend to the Ministers of Education in their respective Provinces that the teaching of Earth Sciences be introduced into the secondary schools, as quickly as possible, at Grade 9 or the equivalent level, and further that the Ministers recommend the development of a suitable Canadian text for this purpose.
- RESOLUTION #2: That the Ministers of Mines recommend to the Ministers of Education in their respective Provinces that committees consisting of representatives from Departments of Education and Mines, the mineral industries, and all levels of the teaching profession be formed to study methods to qualify teachers to a high level of competency for the teaching of Earth Sciences in Canadian schools.
- RESOLUTION #3: That the Ministers of Mines take steps to establish an ad hoc committee composed of representatives of the Provinces and the mining industry to study existing mining legislation and regulations concerned with assessment work credits, and uniformity in legislation concerned with staking procedures.
- RESOLUTION #4: That the Ministers of Mines accept in principle the concept of a co-ordinated nation-wide system of Geo-science data storage and retrieval, and that the Government of Canada through the Geological Survey of Canada should maintain a National Index for that purpose.

The Ministers noted recommendations concerning the possible effects of Canadian tax reform upon the mining and petroleum industries, with special reference to taxation incentives, deductibility of expenses incurred in conservation and reclamation, allowances, and disallowances in provincial mining taxes, pre-production incentives, and tax relief in respect of pollution abatement expenditures.

In respect of the effects of Canadian Tax reform, it is anticipated that the Government of Canada shortly will bring down a White Paper on this matter, and the Ministers call the attention of the industry to the fact that the conference has been advised of the indication given by the Minister of Finance, "that Provincial tax authorities and other interested parties will have an opportunity to present their views on the proposed changes in our tax laws".

The Ministers express the hope that the tax reform measures contemplated will take into account the repeated representations made by this Conference concerning the need for continuing tax incentives to promote the maximum development of our mineral resources.

The Ministers believe that added emphasis should be placed on the social and economic development of our unsettled and remote lands. Mineral exploration pioneers this development. Tax policies must have regard to this continuing development of our mineral resources.

The Ministers wish to advise the Conference of very useful private discussions at the ministerial level which provided the opportunity for a frank exchange of views with the Honourable J. J. Greene and the Honourable Otto Lang concerning matters raised in the Brief to the Government of Canada following the 1968 conference (to which Mr. Greene made detailed reference at the opening Plenary Session), and other matters.

The Ministers also welcomed the remarks of the Honourable Mr. Greene, to the opening Plenary Session of the Conference on the very contentious subject of the conflicting control respecting the exploration for the production of Uranium and Thorium. The Ministers are pleased that they were able personally, to discuss this matter with both the Honourable Mr. Greene and the Honourable Mr. Lang. They are hopeful that increased co-operation and an eventual settlement of these problems will result.

There are features of the work of various Conference Committees which clearly reflect concerns existing in the nation.

By way of example, Committees and Study Groups reported on such problems as salt water disposal, the burning of waste oil from producing and pipe-line operations, off-shore drilling operations and many other matters relating to environmental quality.

Reports will be distributed to governments and industry, and the studies will continue.

Another Committee concerned with safety and health standards in mining operations, has suggested that the Ministers have agreed that the next Conference will review and report on the research now underway on the effect of noise in the mining environment.

These are some indications of the work the Conference is doing on a continuing basis, both in the interests of the public and the mineral industry.

The Ministers resumed formal discussions in the light of the federal proposal on offshore mineral rights which was made public since the 1968 conference.

This Conference, like those that have preceded it, has truly been a working conference.

BRIEF PRESENTED

TO

THE RIGHT HONOURABLE PIERRE ELLIOTT TRUDEAU

AND

THE HONOURABLE J. J. GREENE

WITH RESPECT TO

CERTAIN RECOMMENDATIONS

ARISING FROM

THE TWENTY-SIXTH ANNUAL CONFERENCE

OF THE

PROVINCIAL MINISTERS OF MINES

AT TORONTO

1969

BRIEF
OF
THE PROVINCIAL MINISTERS OF MINES

On behalf of the Ministers who are, in the public sector, responsible for the mineral industries in the provinces of Canada, we wish to present to you this brief containing the recommendations arising from the twenty-sixth Annual Conference of the Provincial Ministers of Mines held in Toronto, Ontario from September 14 to September 17, 1969.

We wish to express our appreciation to the Federal Minister of Energy, Mines and Resources, the Honourable J. J. Greene, for personally delivering the reply of the Federal Government to the brief presented to him following the twenty-fifth Conference of the Provincial Ministers.

As a result of the deliberations of the Provincial Ministers during the twenty-sixth Conference in Toronto, the following resolution, among others, was adopted by the Provincial Ministers and is now respectfully submitted to you:

"That the Ministers of Mines accept in principle the concept of a co-ordinated nation-wide system of Geoscience data storage and retrieval, and that the Government of Canada through the Geological Survey of Canada should maintain a National Index for that purpose."

The Ministers also approved of the following comments for your consideration and reply:

"The Ministers noted recommendations concerning the possible effects of Canadian tax reform upon the mining and petroleum industries, with special reference to taxation incentives, deductibility of expenses incurred in conservation and reclamation, allowances, and disallowances in provincial mining taxes, pre-production incentives, and tax relief in respect of pollution abatement expenditures.

In respect of the effects of Canadian tax reform, it is anticipated that the Government of Canada shortly will bring down a White Paper on this matter, and the Ministers call the attention of the industry to the fact that the conference has been advised of the indication given by the Minister of Finance, 'that the Provincial tax authorities and other interested parties will have an opportunity to present their views on the proposed changes in our tax laws'.

The Ministers express the hope that the tax reform measures contemplated will take into account the repeated representations made by this Conference concerning the need for continuing tax incentives to promote the maximum development of our mineral resources.

The Ministers believe that added emphasis should be placed on the social and economic development of our unsettled and remote lands. Mineral exploration pioneers this development and tax policies must have regard to this continuing development of our mineral resources."

The Ministers also advised the Conference of very useful private discussions at the ministerial level which provided the opportunity for a frank exchange of views with the Honourable J. J. Greene and the Honourable Otto Lang concerning matters

raised in the Brief to the Government of Canada following the 1968 conference (to which Mr. Greene made detailed reference at the opening Plenary Session), and other matters.

The Ministers also welcomed the remarks of the Honourable Mr. Greene, to the opening Plenary Session of the Conference on the very contentious subject of the conflicting control respecting the exploration for and the production of Uranium and Thorium. The Ministers are pleased that they were able, personally, to discuss this matter with both the Honourable Mr. Greene and the Honourable Mr. Lang. They are hopeful that increased co-operation and an eventual settlement of these problems will result.

All of which is respectfully submitted.

Allan F. Lawrence, Chairman
26th Annual Conference of
Provincial Mines Ministers.

C O M M I T T E E S

Committee No. 1 - Problems Relating to Mining Operations

Co-Chairmen: Mr. D. P. Douglass
Deputy Minister
Department of Mines
Ontario.

Mr. F. Gover
Deputy Minister of Mines
Dept. of Mines, Agriculture and
Resources
Newfoundland and Labrador.

A g e n d a:

- a) Resumé of new legislation to be presented by all Provinces.
- b) Non-destructive Testing of mine hoist ropes and hoisting equipment.
- c) New developments in the safe handling and use of high explosives and blasting agents in mines.
- d) Effects of noise on mine workers' health.
- e) Shaft sinking and raising by coring machines.
- f) Recommendation that a subcommittee, consisting of the Chief Inspectors of Mines of all Provinces, be appointed for the purpose of developing uniform mining regulations; this sub-committee to meet at the call of its chairman. (Saskatchewan)
- g) Federal Labour Code - overlapping jurisdiction with Provinces. (Saskatchewan - B.C.)
- h) Mining land reclamation. (B.C.)
- i) Latest pollution control methods.
- j) Other business.

Report of Committee No. 1

a) Resume of new legislation to be presented by all Provinces.

The proposed new Mining Act of Ontario was discussed with particular reference to the provision which will make a mining operator's safety rules enforceable under the Act if and when such safety rules are published on the property as being so enforceable and of general application in that operation.

The British Columbia land reclamation act was discussed with reference to its requirement that it applies to all open-cut mines, quarries and gravel pits and, at the 1970 Conference it might be possible to report on how effective the Act is. This item should be included on the 1970 Conference agenda.

b) Non-destructive Testing of mine hoist ropes and hoisting equipment.

The art of non-destructive testing of wire ropes has not yet been developed to a completely satisfactory stage, and it is recommended that this item be retained on the agenda to provide opportunity to discuss it, if and when new developments arise.

c) New developments in the safe handling and use of high explosives and blasting agents in mines.

The Committee re-affirms its 1968 recommendation that the item be removed from the agenda because it does not generate any comment.

d) Effects of noise on mine workers' health.

The Department of Mining Engineering of McGill University is involved in studying noise, and its effects, as an aspect of the environment of mining. The head of that Department offers his co-operation to those who have an interest in the subject, and in particular the mines inspection branches of The Provincial Departments of Mines. The item should be retained on the 1970 agenda.

e) Shaft sinking and raising by coring machines.

The Committee re-affirms its 1968 recommendation that the item be removed from the agenda because it does not generate any comment.

- f) Recommendation that a sub-committee, consisting of the Chief Inspectors of Mines of all Provinces, be appointed for the purpose of developing uniform mining regulations; this sub-committee to meet at the call of its chairman.

It is recommended that this item be retained dormant on the agenda for use only if a specific matter can be raised in respect of which uniformity of regulations are thought to be desirable and attainable.

- g) Federal Labour Code - overlapping jurisdiction with Provinces. (Saskatchewan - B.C.)

The Committee suggests that nothing has happened since it met in 1968 to dispel the feeling that application of the Canada Safety Labour Code appears to infringe on provincial rights, and is an unnecessary duplication of services in the field of mining. The recommendation is to ask the Ministers to include it on the 1970 Conference agenda.

- h) Mining land reclamation. (B.C.)

The British Columbia delegates have suggested that this item will be discussed in another Committee this year, but nevertheless, that it be included on the Committee No. 1 agenda in 1970.

- i) Latest pollution control methods.

In the light of the proposed new Canada Waters Act, it is recommended that this item might be better discussed in 1970, and therefore, the item should be included on the Conference agenda next year.

- j) Other business.

No other business.

Committee No. 2 - Problems Relating to Explorations and
Development

Chairman: Dr. P. E. Auger
Deputy Minister
Department of Natural Resources
Quebec.

Agenda:

- a) Resumé of new legislation to be presented by all Provinces.
- b) Results of the research undertaken in the field of electro-magnetic surveys by the Provincial and Federal Governments.
- c) Federal Uranium Exploration Permits - overlapping jurisdiction problems. (Saskatchewan)
- d) Joint Meeting Committees No. 2 and 5 - Tuesday, September 16, 4:00 p.m., Roof Garden, Canadian Geoscience Data Institute. Also see item i nos. (1) and (2) Committee No. 5.
- e) Dollar value = vs = number of hours or days as basis for assessment work credits. (Quebec)
- f) Other business.

Panel Discussion

Tuesday, September 16, 2:00 p.m., Algonquin Room.

Subject: Review of the Solid Earth Science - Special study by Dr. R. A. Blais.

Moderator: Mr. J. T. Cawley, Deputy Minister,
Department of Mineral Resources, Sask.

Panel Members: Dr. O. M. Solandt, Chairman,
Science Council of Canada.

Dr. R. A. Blais, P. Eng.,
Chairman of the S.E.S. Study Group.

Dr. D. R. Derry,
Member of the S.E.S. Study Group.

Report of Committee No. 2

a) Resume of new legislation to be presented by all Provinces

A review was made by the delegates of each province of all new legislation.

The high points were as follows:

In Saskatchewan the assessment is based upon the dollar value of the work done. If requirements are not met, the claims can be retained by the payment of money. Also claim owners may make arrangements for extension of time for assessment work.

In Manitoba unlimited staking was introduced. Also block staking is permitted.

In Ontario a new bill was passed by which permission has to be granted for the exportation of unrefined ore to be treated outside of Canada.

In New Brunswick two acts were passed designed to establish management control of coal mines in Minto Area. Also some amendments were made to the Mining Act including provision for unlimited staking; also a special assessment credit-allowance for any kind of survey of a regional nature is granted to any group of claims staked within the region studied.

b) Results of the research undertaken in the field of electromagnetic surveys by the Provincial and Federal Governments.

This item was discussed and resulted in useful exchange of ideas.

c) Federal Uranium Exploration Permits - overlapping jurisdiction problems.

It was proposed to wait and see what action the Federal Government will take following the Honourable Mr. Greene's remarks at the opening session.

- e) Dollar value = vs = number of hours or days as basis for assessment work credits. (Quebec)

Dr. P. E. Grenier, seconded by Mr. R. Scott moved that committee No. 2 recommend to the Mines Ministers the setting up of an ad hoc committee composed of representatives of the provincial governments and the mining industry to study the various mining legislations and regulations; also that the ad hoc committee write a document making specific recommendations to establish uniformity in provincial legislations covering the above-mentioned fields and to report back to the committee at the next Mines Ministers Conference.

Committee No. 3 - Royalties, Taxation and Tariffs

Co-Chairmen: Mr. K. B. Blakey
Deputy Minister
Department of Mines and Petroleum
Resources
British Columbia.

Dr. J. C. Smith
Asst. Deputy Minister (Mines)
New Brunswick.

A g e n d a:

- a) Resume of new legislation to be presented by all Provinces.
- b) Carter Royal Commission.
- c) Report of sub-committee on the uniformity of deductions under the several Mining Tax Acts across Canada.
- d) Other business.

Report of Committee No. 3

The Committee considered the following agenda at its meeting on September 15th, at 2:00 p.m. and September 16, at 9:00 a.m. Copies of the resolutions and recommendations adopted for consideration by the Mines Ministers are appended.

1. Federal Tax Reform

- a) A resolution concerning continued resource tax incentives. (Appendix I)
- b) Resolution concerning publication of White Paper by the Federal Government was adopted. (Appendix II)

2. Conservation and Reclamation

Resolution concerning allowance of expenses incurred in conservation and reclamation for purposes of the federal and provincial income taxes and of mining taxes. (Appendix III)

3. Uniformity of Allowances and Disallowances in Provincial Mining Taxes.

Recommendations by the Sub-Committee on the Feasibility of obtaining uniformity on the Allowances and Disallowances under the several Mining Acts in Canada. (Appendix IV) The Ministers, at the 25th Annual Conference in Quebec in 1968, directed the sub-Committee under the joint chairmanship of Messrs. B. C. Lee (Ontario) and J. Tetu (Quebec) to study the feasibility of developing at least a degree of uniformity in the allowances and disallowances, in the various mining tax acts in Canada and to report its findings and recommendations to Committee No. 3 at the 26th Annual Conference in 1969.

It is clear that even limited progress in bringing a measure of uniformity in the allowances and disallowances of revenue and costs involved in the computation of mining taxes would reduce the burden of mining operators in submitting mining tax returns, and would strengthen the claim by mining operators for the acceptance by federal tax authorities of the full mining tax paid to the provinces.

The Sub-Committee was successful in selecting a number of items of revenue and costs which could form the base for a gradual change in the mining tax acts to bring about uniform treatment of those items.

It was recognized by the Sub-Committee that the proposed changes would not be applicable to all provinces, at least for the foreseeable future. For example, the mining tax in British Columbia is levied on a base which differs from the other provinces.

Although not all provinces were represented at its meetings, the Sub-Committee has submitted a specified list of allowances and disallowances to serve as guide lines for future amendment of mining tax acts, where applicable, by each province at an appropriate time.

Each of the points where uniformity may be possible were examined and approved by Committee No. 3. They are presented as a recommendation for consideration of the Ministers. (Appendix IV)

4. Tax Treatment for Pollution Control Facilities

Resolution concerning a request by the industry for allowances of expenditures on pollution control facilities for federal and provincial income taxes and mining taxes. (Appendix V)

5. Report by Sub-Committee on Mineral Statistics

A report by the Sub-Committee on its progress was received by Committee No. 3 and is appended for the information of the Ministers. (Appendix VI)

6. Resume of Changes in Ontario Mining Tax Act.

(Appendix VII).

APPENDIX I

Resolution re Tax Reform and Natural Resource Incentives

Whereas the Mines Ministers have previously expressed their concern about the Carter Report proposals with respect to the taxation of the Mining and Oil industries.

Whereas important measures in tax reform are in process, in Canada and other jurisdictions which could have a marked effect on the progress of resource industries.

Whereas, tax reform in certain countries has reached a stage where incentives appear to have been sustained in principle.

Whereas in considering a continental approach for the economic development of natural resources, a common assured supply of minerals is of major concern.

Therefore, it is recommended that the Provincial Ministers of Mines at this 26th Annual Conference, in the interests of continued expansion of the natural resource industries within their jurisdictions ensure that Canadian tax reform at the Federal level will fully recognize continued resource incentives.

APPENDIX II

Resolution re White Paper on Federal Tax Reform

Whereas, the delay in the announcement of the intentions of the federal government in connection with the proposed reform of the federal Income Tax Act has placed a constraint on the mineral industry in decisions affecting new mineral projects as a result of the present uncertainty concerning the income tax revisions.

It is recommended that the Provincial Ministers of Mines urge the federal government to publish the White Paper on federal tax reform without further delay.

APPENDIX III

Resolution re Expenses Incurred in
Conservation and Reclamation

Whereas certain of the Provinces have enacted or propose legislation requiring mining companies to reclaim and conserve property used in mining operations, said reclamation and conservation to be carried out during and after completion of mining operations;

Whereas the legislation may require substantial expenditures by owners and operators of mines;

Whereas the expenditures may not be considered allowable deductions under the Income Tax and Mining Duties Acts and;

Whereas certain of the expenditures required after the completion of mining operations may be ineligible for deduction under the Federal and Provincial Income Tax legislation because of the limitations of loss carry back provisions.

Therefore, it is recommended that the Provincial Ministers of Mines at this 26th Annual Conference endorse this resolution which seeks the following tax treatment of expenditures required for reclamation and conservation of mining properties.

1. All expenditures for reclamation and conservation incurred during the operations of the mine be deductible for the purposes of calculating taxable income under Federal and Provincial Income Tax and under provincial mining tax legislation, and
2. A deduction be allowed under the said Acts during the period of operations to provide for reclamation and conservation expenditures that will be incurred after cessation of mining operations.

APPENDIX IV

Recommendations for Allowances and Dis-
allowances in Provincial Mining Taxes.

Recommendation No. 1

That assets be depreciated on an original cost basis, with no minimum requirement, and that allowed depreciation be recaptured to the extent possible upon disposal of an asset.

Recommendation No. 2

That, where applicable, a deduction of profit attributable to processing equal to at least 8 per cent of the original cost of processing assets be made; such allowance not to be less than 15 per cent of the profits before processing allowance nor more than 65 per cent of the same profits; and where assets are used jointly in mining and processing, the value of the assets to be allocated in accordance with their use in mining and processing.

Recommendation No. 3

That the following items be allowable deductions:

- 1) Cost of printing the annual report.
- 2) All types of advertising.
- 3) Municipal and school taxes.
- 4) Membership fees such as Chambers of Commerce, Boards of Trade, Service Clubs, etc.
- 5) Subscriptions to all publications.
- 6) Charitable, cultural, education, and patriotic donations.
- 7) Portion of expenses covered by a subsidy such as a payment under the Emergency Gold Mining Assistance Act.

Recommendation No. 4

That the following items be allowed in the light of the particulars to the extent attributable to mining and processing.

- 1) Fees and expenses of Directors and elected Officers.
- 2) President's Salary and expenses.
- 3) Management fees.

- 4) Legal fees.
- 5) Scientific research.
- 6) Head Office or executive office expense.

Recommendation No. 5

That the following items be disallowable as deductions:

- 1) Cost of annual meetings.
 - 2) Interest on capital invested and funded debt.
 - 3) Storage of securities.
 - 4) Stock exchange fees.
 - 5) Insurance premiums attributable to loss of profit portion of use and occupancy insurance.
 - 6) Bad debts which do not represent loss of payment for the product.
 - 7) Losses carried forward or backward.
 - 8) Prospecting, exploration and development outside the jurisdiction.
 - 9) Transfer or registration fees.
 - 10) Royalties for use of property, except those paid to the Crown.
 - 11) Expenses re incorporation or reorganization.
 - 12) Bond discounts or discounts of shares sold or issued.
 - 13) Increase in reserves or provision of contingencies.
-

Footnote:

The Sub-Committee considered the following item as a possible recommendation:

That preproduction expenses be allowed as a deduction in computing the base for mining taxes.

In view of the fact that all provinces now allow preproduction expenses as a cost for purposes of mining taxes, the item was omitted. However, it should be noted that the allowance for preproduction expenses by the Province of Ontario is restricted.

APPENDIX V

Resolution re Tax Treatment for Pollution Control Facilities

Whereas the Provinces have considered measures to control water pollution at the recent Prime Ministers Conference in Quebec City;

Whereas the Federal Government has recently outlined a policy in respect of water pollution control which would be applied in conjunction with the Provinces;

Whereas measures to resolve problems of air pollution control are of increasing concern both to industry and all governments;

Whereas the implementation of such measures and policies will require heavy capital investments and may substantially increase the costs of operations for industry in general and the mining industry in particular;

Whereas such increased costs in capital and operating expenses could affect the competitive position of industries in the domestic and foreign markets;

Whereas appropriate tax treatment at the Federal, Provincial and Municipal levels could ensure that the cost of pollution control facilities would not be further burdened by taxes;

Whereas the Federal Government has already provided accelerated depreciation to encourage investment in water pollution control facilities;

Therefore, it is recommended that the Provincial Ministers of Mines at this 26th Annual Conference consider this resolution and seek the following tax treatment for approved facilities acquired primarily for the purpose of preventing, reducing or eliminating air and water pollution:

Sales Taxes

That such facilities and component parts and material be exempt from Federal Sales Tax and Provincial Sales Taxes.

Income Taxes & Mining Duties

That a 50% straight line depreciation be allowed on such facilities for income tax and mining duty purposes by the Federal and Provincial governments as is now allowed by the Federal Government in respect of water pollution control facilities.

Property Taxes

That such facilities be exempted from property (including business) taxation levied for municipal and school purposes.

APPENDIX VI

REPORT BY SUB-COMMITTEE ON MINERAL STATISTICS

The continuing Sub-committee on Mineral Statistics met at 3:30 p.m. on Sunday, September 14, 1969, to review progress on the survey of mining and exploration companies relative to exploration, development, capital and repair expenditures, and to consider statistical problems of joint interest. Representatives of all provinces and the territories, except Newfoundland and Prince Edward Island, were in attendance.

The project on expenditures was initiated at the 22nd Annual Conference of Provincial Ministers of Mines in September 1965, when the Sub-committee was first established. A number of meetings were held and the first survey was undertaken in 1968 for the year 1967 as reported to this Conference in 1968. Subsequent modifications and the preliminary results of a second survey for 1968 were considered by the Sub-committee based on a progress report prepared by the Dominion Bureau of Statistics. The Sub-committee also reviewed the questionnaires and adopted changes for incorporation into the 1970 forms. Problems on employment data relative to the expenditure survey were unresolved. In addition, other problems of joint interest relative to mineral commodity questionnaires were discussed. The considerations underway by DBS to reappraise all mineral statistics were noted.

In addition to continuing its work to finalize the survey of expenditures for 1968 with DBS and to seek improvement in the questionnaires as problems arise, the Sub-committee

recommended that:

- 1) The preliminary report on 1968 expenditures be made available to Ministers and Deputy Ministers, and the release of national data to the news media could be considered,
- 2) The chairman is to initiate follow-up communications with mining associations and the provinces on the problem of employment data related to the expenditure survey,
- 3) The chairman, at his discretion and with agreement, may call a meeting at the time of the annual meeting of the Canadian Institute of Mining and Metallurgy to consider:
 - a) the employment data problem and the results of communication with the mining associations and provinces,
 - b) other recommendations on the DBS forms prior to printing for the 1970 survey, and
 - c) progress by DBS on the initiations of a comprehensive and systematic reappraisal of mineral statistics, and ways in which the Sub-Committee should participate in the reappraisal.

Finally, I am pleased to report that the Sub-Committee's activities have continued to strengthen the results of its work and that working relations among members is conducive to further improvements in the field of mineral statistics.

APPENDIX VII

Resume of Changes in Ontario Mining Tax Act

- Item #1 - The definition of "mine" is changed to include all kinds of industrial minerals, however, the mineral substances which were not previously subject to tax under the Mining Tax Act remain immune, except that the tax act now permits the investigation of the profitability of such operations in the event that the government might subsequently subject them to the mining tax.

- Item #2 - The Mining Tax Act was amended so that mines which do not make a profit in excess of \$50,000.00 will be subject to no taxation, however, mines from which profits exceed \$50,000.00 will be subject to taxation on the total profits.
- Item #3 - The clause dealing with depreciation was amended to make it clear that there would be a recovery of the excessive depreciation after the assets have been disposed of.
- Item #4 - The provision for the disallowance of preproduction expense in the 1960 Act, has been amended so that mines which came into production after the first day of January 1965 and which are treating their minerals to at least the smelter stage in Canada may claim 10% of the capitalized cost of preproduction, subject to the provision, that 10% of such capital cost has been written off for each year, or part year of production on a pro-rata basis, prior to the taxation year in which the smelter has been operated in Canada, or the taxation year ending in 1969, whichever is the later, and also provided that if any portion of the ore, has been or will be smelted outside Canada, then only that proportion of the annual allowance for the cost of development work that the selling value of the product of the ore treated to at least the smelter stage in Canada bears to the selling value of all products of the mine, will be permitted as a deduction.
- Item #5 - The remaining amendments to the Mining Tax Act are purely administrative matters which transfer the responsibility for discretionary powers from the Minister to the Lieutenant Governor in Council and other minor clarification amendments dealing with appeal procedures etc.

Committee No. 4 - Coal

Chairman: Dr. J. P. Nowlan
Deputy Minister
Department of Mines
Nova Scotia.

Agenda:

- a) Resume of new legislation to be presented to all Provinces.
- b) Strip mining reclamation problems.
- c) Other business

Report of Committee No. 4

- 1. Review of business arising from Canadian Conference on coal.
- 2. Proposal to develop model regulations for coal mine operations compatible with modern techniques and trends in coal mining.
- 3. Reclamation problems in open cast mining.

Report of Chairman

- 1. No business arose from conference on coal. Reports by those in attendance at conference indicated a high degree of enthusiasm on resurgence of coal industry in Western Canada and decision to open new mine Cape Breton. It was felt that material for consideration by the Ministers in future years would arise from these developments.
- 2. The Committee considered that in view of the adoption of more technically involved underground production methods that compatible legislation is highly desirable and it should be essentially compatible between provinces. In view of new legislation recently enacted by British Columbia it was decided that Committee members should have the opportunity to study these regulations before any recommendations are made as to preparation of model regulations.
- 3. The present regulations enacted and about to be enacted by both British Columbia and Alberta were explained to the Committee. These regulations will be studied by the Committee members prior to any recommendations. It was felt there should be joint consideration by Committees #1 and #4.

Committee No. 5 - Petroleum and Natural Gas

Chairman: Mr. H. H. Sommerville
Deputy Minister
Department of Mines and Minerals
Alberta.

Deputy

Chairman: Mr. M. J. Gobert
Assistant Deputy Minister
Dept. of Mines and Natural Resources
Manitoba.

Agenda:

- a) Resumé of new legislation and procedures to be presented by all Provinces.
- b) Consideration of the report of the Agenda Committee.
- c) Consideration of reports.
- d) The proposed Model Grant of Right-of-Way for pipe lines and proposed amendment of the Model Form of Surface Lease.
 - 1) Waste oil or gas from refining operations (Quebec)
- e) Annual review of the Model Unit Agreement and the Model Unit Operating Agreement.
- f) Discussion concerning reports on Markets for Crude Oil, Natural Gas and Sulphur.
- g) Report on Department of Trade and Commerce, Standards Branch, announcement respecting gallon content of barrel.
- h) Other items.
- i) Joint meeting with Committee No. 2, Tuesday, September 16, 4:00 p.m., Roof Garden, concerning:
 - 1) Storage and retrieval of geological data in Canada.
 - 2) Report on and recommendations respecting communications problems facing the mining and petroleum industry in remote areas at the time of exploration and development.
- j) Other business.

Report of Committee No. 5

Your Committee met on September 15 and 16, 1969, and the study groups established by its Agenda Committee in accordance with the report submitted at the 25th Annual Conference of Ministers of Mines in Quebec met on occasion during the year.

Government representatives gave a resume of new legislation and procedures enacted in their jurisdiction.

Reports of study groups were received on the following:

- a) mechanics lien legislation affecting the oil and gas industry,
- b) the gallon content of a barrel of petroleum, being 34.9722 gallons pursuant to an announcement of the Weights and Measures Division of the Federal Department of Trade and Commerce,
- c) pollution control respecting
 - (i) salt water disposal problems,
 - (ii) air pollution from burning of waste oil from producing and pipe line operations, and
 - (iii) offshore drilling operations, and
- d) standard formats for Digital Well Log Data.

The Reports will be distributed to governments and industry.

A Model Grant of Right-of-Way and an amendment to the Model Form of Surface Lease will be studied further by their study group.

An Annual Statistical Report was received and continuation of the study was approved.

During the ensuing year your Committee will continue

- a) a review of the Model Unit Agreement and the Model Unit Operating Agreement;

- b) the study on pollution control respecting:
 - (i) salt water disposal,
 - (ii) air pollution from burning of waste oil from producing and pipe line operations,
 - (iii) offshore drilling operations, and
- c) a study of expropriation legislation affecting the oil and gas industry.

New studies will be undertaken during the ensuing year relating to:

- a) Gas Measurement Requirements,
- b) Battery Equipment Spacing,
- c) Safety Regulations affecting workmen during drilling, producing and processing operations, and
- d) a comparative analysis of existing air pollution control legislation affecting the oil and gas industry throughout Canada.

Your Committee recommends its continuation as a standing Committee.

Committee No. 6 - Education and Manpower

Co-Chairmen: Mr. J. T. Cawley
Deputy Minister
Department of Mineral Resources
Saskatchewan.

Mr. J. S. Roper
Director of Mines
Department of Mines and Mineral Resources
Manitoba.

A g e n d a:

- a) Resumé of new legislation and procedures to be presented.
- b) Earth Sciences education in high schools.
- c) Job opportunity talks in high schools.
- d) Employment of university students during summer recess.
- e) Earth Sciences symbols on highway maps.
- f) Other business.

Report of Committee No. 6

- a) A delegate from the province of Quebec informed the meeting that Provincial and Regional Advisory Committees for the development of interest in "mineral and other industry employment" were now operating due to new legislation under the jurisdiction of the Department of Labour rather than the Department of Education in the province of Quebec.
- b) Representatives from the Alberta Society of Petroleum Geologists; the Canadian Institute of Mining and Metallurgy; and the Geological Association of Canada, presented a brief "The Teaching of Earth Sciences in Canadian Secondary Schools" together with supporting documents entitled:
 - 1) Views on Research in Solid Earth Sciences in Canada - by the Canadian Institute of Mining and Metallurgy.

2) The Teaching of Earth Science in Secondary Schools in Canada - by Public Information Committee G.A.C.

Discussion of the various aspects of the brief and the supporting documents resulted in the adoption of the following resolutions for the consideration of the Ministers of Mines.

- (i) "The Committee recommends that the Ministers of Mines support and recommend to the Ministers of Education in their respective Provinces that the teaching of Earth Sciences be introduced into the secondary schools as soon as possible, and further that the program be introduced at the Grade 9 or equivalent level using the text "Investigating the Earth" produced by Houghton Mifflin Company - Boston, as a guide until a suitable Canadian Text has been developed.
- (ii) The Committee recommends that Ministers of Mines suggest to the Ministers of Education in their respective provinces that a Committee, consisting of representatives from Department of Education, the Department of Mines, the mineral industries and all levels of the teaching profession, be formed to study methods that will qualify more teachers to a high level of competency for the teaching of an Earth Sciences Course in Canadian High Schools."

The Committee was informed that the Alberta Society of Petroleum Geologists, the Canadian Institute of Mining and Metallurgy and the Geological Association of Canada, stand ready to co-operate with the Departments of Education in the development of seminars on the nature of the Earth Sciences course in the high schools and the related training of teachers within the Provinces and on a National scale and further that these organizations would appreciate it if the Ministers of Mines would convey this information to their colleagues, the Ministers of Education.

- c) The Committee was informed that the branches of C.I.M. were providing speakers for talks in high schools. Also that the Toronto Branch of C.I.M. is preparing a set of slides on the mineral industry together with a commentary. These will be made available to all interested parties through the C.I.M. Headquarters in Montreal.

- e) Discussion of the advantages to the travelling public and all Canadians led to a Committee resolution, "That the Ministers of Mines recommend to the Ministers of Highways that Provincial Highway maps indicate points or areas of geological and mining interest".

Assistance in the compilation of such a map might be obtained from the Departments of Mines and Universities.

Members brought to the attention of the Committee that the Educational Committee of the C.I.M. had available for distribution 3000 wall charts entitled "Exploring for Minerals", the text of which is in French and English as well as 50,000 copies of Teacher/Student notes.

The Chairman reviewed the report of the Committee presented at the 25th Annual Conference of Provincial Ministers of Mines and discussion brought forward the following remarks:

"That the C.I.M. still have available for distribution approximately 300 copies of the Report of Education Committee of C.I.M. on Mineral Industry Manpower Survey."

It was pointed out that this report had been distributed in Saskatchewan to other Departments which could utilize the material as well as to companies or institutions to whom the information would be a benefit.

"That although there had been a heavy demand, there remained educational material from the Ontario Department of Mines and this is available while the supply lasts."

It was recommended that Committee No. 6 be continued as a standing committee of the Mines Ministers Conference.

The Teaching of Earth Science
in Secondary Schools in Canada

A brief presented by the
Geological Association of Canada

to the

Solid Earth Science Study Group

Professor Roger A. Blais, Chairman

April 17, 1969 in Montreal, Quebec.

Prepared by C. G. Winder, Chairman
Public Information Committee, G.A.C.

I. CONCLUSION

1. The teaching of EARTH SCIENCE, and GEOLOGY per se, should be introduced into the secondary schools of Canada as soon as possible, initially using the American Geological Institute's Earth Science Curriculum Project (ESCP) program (Note A). The program should be introduced at the grade 9 or equivalent level as the content was designed for students at that grade. The basic reasons motivating this conclusion are:
 - (i) the desirability of introducing high school and junior college students to the science of their physical environment, leading to a better understanding of the physical world in which we live;
 - (ii) the need to incorporate in their scientific culture a proper appreciation of the forces of Nature, the dimensions of our universe and the length of geological time;
 - (iii) the need to acquaint them with the long evolution of life on our planet;
 - (iv) the scientific curiosity of students for the exploration of outer space;
 - (v) the realization of the economic and social importance of Canada's mineral and petroleum industry, and
 - (vi) the necessity of attracting a greater number of gifted students to Earth Sciences and to mining and petroleum technology, in order that Canada maintains its competitive position in World markets.
2. This report is based on a minimum-sized nation-wide sample of data. A more extensive investigation should be commissioned by the Science Council of Canada to determine the policies of science teaching of provincial educational authorities, and to study with them means of implementing the above recommendation.

II. RATIONALE

- A. Geology and earth science are relevant today in four major aspects which have social and economic importance in every Canadian province and territory.
1. Cultural appreciation of the earth ("Intellectualism or Tourism") - people have a better appreciation for their surroundings if they understand the morphological forms of the land and the sea. Educational materials in the earth sciences for the general public is appearing at an accelerated rate. Attractive booklets have been issued in recent years by such organizations as the Geological Survey of Canada, Ontario Department of Mines and the Quebec Department of Natural Resources. The Royal Ontario Museum has sold over 12,000 copies of a pamphlet on the Niagara Escarpment.
 2. Agriculture - an understanding of the character and disposition of soil types and groundwater are essential for maintenance and increase of the world's food supply.
 3. Construction - as man's urban development has encroached on the natural environment, occurrences of mass movement, dam failure, terrain subsidence, uncontrollable erosion as initiated by vegetation removal, etc., have increased markedly. It is no longer conceivable that major structure such as buildings, town sites, canals, dams, bridges, highways, railroads, pipelines, sewers, tunnels, causeways, breakwaters, river diversions, etc. would be built without geological consultation. But some are and with dire consequences!!!!
 4. Mineral resources - discovery and exploitation of minerals, industrial materials, carbonaceous and radioactive fuels, and groundwater.

Canada, because of its size, geological complexity and economic dependence on the mineral industry, can continue to provide itself, and the rest of the world, with an abundance of inexpensive mineral and mineral-energy resources upon which our civilization has come to depend. The 1968 gross value of rock and mineral materials and fossil fuels produced in Canada was \$4,750,000,000, exclusive of groundwater, which constitutes approximately seven percent (7%) of the Gross National Product and twenty-five percent (25%) of Canada's total exports.

Economically, Canada's high standard of living depends upon deposits such as Nova Scotia barite and gypsum, Quebec asbestos, Sudbury nickel, Saskatchewan potash, and Alberta petroleum, natural gas and coking coal. But contemplate the impact of a recent oil discovery at Pudhoe Bay, in northern Alaska!

- B. Earth Science and geological principles and practices must also be brought to bear on two major problems facing the world.
 - 1. An increase in food production in areas of low productivity. Local activities which may resolve the problem include searching for mineral fertilizers, irrigation practice, soil conservation, and prediction and modification of climatic conditions.
 - 2. Waste disposal and pollution - man tends to produce at a high rate, and concentrate "junk" in local piles; he discharges toxic liquids and gases into the environment enveloping life. The balance has been tipped such that the slow natural disposal processes such as has occurred in the geological past do not operate. (At least one author has reflected "on the mentality of a creature so stupid as to discharge wastes into the envelope in which he is physically encased").
- C. Modern geology was initiated in Canada in 1842 by Sir William Logan, as a utilitarian science. Geology as practised today is still largely utilitarian, and therefore considered by some as somewhat mundane.

The opinion has been offered that "pure" science must be fostered if our culture is to be maintained and developed and if the science is to flourish. The exciting concepts of continental drift, sea floor spreading and an expanding (?) earth may place earth science back into the forefront, a position held by geology a hundred years ago.

- D. The activities concerning earth science demand an increase in the number of participating individuals, but studies in Canada suggest an actual decline in the number of students entering the field. Professor C. W. Stearn (RSC Special Paper 11, 1968, p. 57) states that for the last five years the number of students graduating with a bachelor's degree has dropped 45 per cent, well below the 1957 level. Therefore an effort should be made to stimulate and entice the potential individual to earth science as soon as he is capable of contemplating the earth. Such education should begin with the high school student, particularly those who have the intellectual potential to attain high academic achievement at university. Encountering earth science at high school could discover at an earlier time than university the potential earth scientist whose mind has the special ability to deal with the complex interacting variables of natural systems, where experiments are not necessarily susceptible to laboratory evaluation and proof.
- E. The education of a geologist at the undergraduate level in Canada is rather unique in that he has the opportunity to complete two or more summer field seasons before graduation thus strengthening his fundamental understanding of geology. The Canadian curriculum usually includes mineral exploration, or economic geology, the utilitarian aspect vital to the economic development of the country. More obvious reference should be given to their role as "social engineers" with their contribution to engineering studies, terrain analysis, conservation and pollution disposal. Modern geological field work is analogous to the activities of our pioneers; the Canadian people can only retain title to the vast northland by further establishing and expanding their presence. Geologists can participate effectively in the vanguard! Canada should also supply

an increasing number of geologists to the developing countries of the world because these scientists, along with those from agriculture and forestry can provide "instant" benefits to other nations.

III. RECOMMENDATIONS

The Geological Association of Canada holds the opinion that earth science (or geology) in secondary schools should be a required secondary school subject but recognizes that "more readily available" must be a realistic proposition. The Association is prepared to formulate committees to act within its means with provincial officials of education to implement and promote the recommendations stated herein. We feel that we owe it to the younger generation to exert now the necessary pressure to ensure the well-being of their future living. (The indicated notes of data are in the appendix.)

1. An attractive career brochure on earth science for Canadian students must be produced (Note B).
2. The provincial educational departments must be persuaded that earth science should be a "more available" subject at junior high and high school. The provincial mines ministers might be persuaded to use their influence with the education ministers. The opinion that Geology is something that cannot be taught at the pre-university level is no longer acceptable. The pre-university student who understands the movement of planets could comprehend the drifting of continents. The existing course offerings of geology and earth science in secondary schools clearly indicates that educators on the secondary school level, and the general public, must become more concerned with the importance of earth science (Note C).
3. A modern, up-to-date, stimulating junior high or high school curriculum should be introduced as soon as possible. The most rapid implementation would be accomplished by adopting the American Geological Institute's Earth Science Curriculum (ESCP) Program, AS IS!!!! The unsatisfactory features could be eliminated only by a massive

re-writing incorporating examples from Canada over a long period of time. The time for such a rewriting would be extensive because only a relatively small group of geologists could devote any time to the project without substantial funding (Note D and E).

4. A national committee of university, government and industrial geoscientists along with teachers from earth province should examine "in committees" the ESCP to determine its inadequacies for Canadian educational scene. Necessary supplementary materials can be prepared on an experimental basis for testing in selected classes by teachers who are fully capable of presenting the curriculum (Note E and J).
5. Summer institutes for selected qualified teachers from all provinces should study the ESCP materials for presentation to their high school classes. The instructors for these classes at the first instances should be professional educators who were personally engaged in the writing of the original program. Subsequently, graduates of summer institutes could serve as instructors in their own area.
6. In 1969-70, the National Research Council granted \$2,889,000 for operating grants in earth science. If one percent (1%) of this amount was assigned to the development of human resources, it is estimated the funds would cover the cost of a six week summer course for:

1)	two competent instructors -	
	stipend, travel, living	\$ 7,000
2)	30 participants from across	
	Canada - travel, living and	
	nominal stipend	18,000
3)	administration and mis-	
	cellaneous	<u>3,000</u>
		<u>\$28,000</u>

This course would be provided for presently qualified and experienced teachers who wished to increase their effectiveness. The programme should come under the jurisdiction of the Ad Hoc Committee on Scholarship and Training of the National Advisory Committee on Research in Geological Sciences. Ideally, increased funds should be made available until national implementation had been accomplished (Note F).

7. At the present time, certain companies provide scholarships funds for teachers to take special courses, usually in the United States. Company representatives visiting university departments always seek the better qualified students. Better qualified secondary school teachers to teach earth science would influence the student with the high academic potential and the special aptitude for the science. Companies should recognize that support of a secondary school program will eventually bring along a better qualified student.
8. The provincial departments of education should be persuaded to up-grade qualifications for teachers by encouraging them to take additional courses at university (Note G). The universities should offer courses at summer school at a level more advanced than the introductory course (Note H).
9. Geoscientists as individuals and in groups should be encouraged to communicate with students with enthusiasm and dedication (Note I). Their employers should make special arrangements in order to affect the necessary communication. The persuasion of educators who make the decisions on curricula at all level will have to come from the the geoscientists and the results will depend upon the effectiveness of the arguments. Natural evolution will not provide results. The present seeming pathetic situation probably can be overcome with the recognition by the established professionals of their obligation to society! They can recognize that their science is serving society in a more immediate and positive way than any other science. The fruits of their contributions will be enhancement of their social and scientific position in the eyes of the general public!!!

APPENDICES

NOTE A

The Earth Science Curriculum Project (ESCP)

The American Geological Institute initiated E.S.C.P. about seven years ago. Development over four years utilized the scientific method in that a prestigious panel of specialists wrote units during summer writing sessions; this material was used in selected nation-wide high schools after which the teachers commented, criticized and commiserated. The material was re-written and published in preliminary volumes for wider distribution, followed by teacher evaluation. In 1967, Houghton Mifflin Company, published the four volumes - student text, student laboratories and two teacher's guidebooks - under the title Investigating the earth. In Canada, the distributor's address is 81 Curlew Drive, Toronto, Ontario. The contents intended for grade nine students are presented using every available technique to make the subject matter stimulating and meaningful - such as numerous illustrations including many in colour, charts and graphs, cartoons, and abbreviated biographies of famous scientists. The text is up-to-date with such subjects as continental drift. The student is given some "unsolved problems" which should develop his perception, imagination and deductive reasoning.

The subject matter includes units on the solid earth and its shape, energy and forces; the processes including atmospheric, oceanic and subsurface; the history of the earth and the evolution of life; and the position of earth in space. The approach, illustrated particularly by the laboratory assignments, is scientific, utilizing the principles and procedures from chemistry, physics, biology, mathematics, astronomy - and geology. All measurements are given in the metric system.

The impact of this program in the United States is evident from brief statistics cited in the ESCP Newsletter (March, 1969, No. 18, available from Box 1559, Boulder, Colorado). In the State of Oklahoma during 1962-63, earth science was taught in 18 schools; in 1968-69, the number had increased to 162. The Newsletter cites the results of the Test of Science Knowledge (TOSK) on College students with and without ESCP; the results indicate that the ESCP students with high school chemistry, physics and biology ahead of them, were already close to the science-ability of present college students. Surprisingly, students without ESCP are probably no better pre-

pared for university geology than present students. However, of great importance, is the results indicate that ESCP is a very effective program for improving scientific attitudes and abilities of students.

The ESCP program in the U.S. is financed by the National Science Foundation. In 1963, NSF had a total expenditure of \$320 millions of which over \$40 millions were designed for "Institutes", programmes primarily for elementary and secondary school teachers. In 1969, NSF will sponsor 41 summer institutes in ESCP and earth science.

NOTE B

Career Booklets and Guidance

The available career booklets are listed below. The most widely used are those published by the American Geological Institute, but one guidance official stated he would prefer to see more Canadian examples. The CIMM booklet includes a wider spectrum of careers from geology to mining and metallurgy. The pamphlet produced by the Ontario Guidance Centre seems unknown in universities.

Concerning advice from guidance counsellors, the general opinion is held that no advice is usually offered or probably that which is, would not encourage the student to seek a career in earth science or geology.

Career Pamphlets

Geology - Science and Profession - The American Geological Institute, 2201, M Street N.W., Washington, D.C., 20005, 1964, 0.25¢ quantity discount.

Geologists. Occupational Brief No. 184. Science Research Associates, 57 West Grand Avenue, Chicago 10, Illinois, 1963, 0.53¢ each, no discount.

Geologist. Chronical Occupational Brief No. 129, Chronicle Guidance Publ. Inc., Moravia, N.Y., 1961, 0.35¢, quantity discount.

The Sphere of the Geological Scientist. The American Geological Institute, 2201 M Street N.W., Washington, D.C. 20005, 0.40¢, quantity discount.

Career in the Mineral Industry. Canadian Institute of Mining and Metallurgy, 906 Drummond Building, Montreal, free.

Geologist. Guidance Centre, Ontario College of Education, 371 Bloor Street West, Toronto 5, Ontario, 1965. 15¢, quantity discount. (The Centre has available career pamphlets on most occupations including oceanographer, Archeologist, Meteorologist, University Teachers, Geophysicist, etc.).

NOTE C

Existing Course in Secondary School Earth Science

The present course offerings are summarized in the accompanying table. The only course identified as GEOLOGY or EARTH SCIENCE required in secondary school is given in Nova Scotia. The course is in the curriculum for students who generally will not proceed to University. The subject matter is taught in courses identified as Science or Geography. There are examples of a student interested in geology registering at university and selecting the wrong prerequisite courses because the subject matter had been taught as and equated to another subject.

At the present time, course outlines exist for courses in Newfoundland, Nova Scotia, Quebec, Ontario and British Columbia. The individual outlines seem to have been constructed by a relatively few people in each case.

Existing courses in Secondary Schools

* - course outline exists

<u>Grade</u>	<u>Name of Course</u>	<u>Required Optional</u>	<u>Availability Terminal - T University-U Both - - - B</u>	<u>Texts</u>	<u>Teacher Qualifications</u>	<u>Level of Teach- er Training</u>
Newfoundland	10 Earth Science*	0	B	R & B	Teachers Certificate	Minimal, usual- ly with only a couple of univer- sity courses; some geology majors are not teaching earth science.
	11 Geography*	0		S		
Nova Scotia	11 Earth Science*	R	T	R & B	Bach., Geology	Teachers usual- ly four or five courses in geol. Earth Science teachers must complete a sum- mer training program (Note F).
	Geology*	O	UB	E S M	Major plus B. Ed.	
<hr/>						
Enrollment 1967-68 - Grade 11 - 941 boys, 729 girls'						
Grade 12 - 151 boys, 81 girls'						
<hr/>						

Prince Edward Island
Geology is not offered; however, with a revised and enlarged curriculum it could be introduced as an optional subject.

<u>Grade</u>	<u>Name of Course</u>	<u>Required Optional</u>	<u>Availability Terminal - T University-U Both - - - B</u>	<u>Texts</u>	<u>Teacher Qualifications</u>	<u>Level of Teach- er Training</u>
New Brunswick	Geography	O	B	-	-	-
Quebec	12 Geology*	O	U	None	B.Sc., M.Sc.	University graduates but not necessarily in geology.
	9 Geology proposed using ESCP but not yet accepted.					
Ontario	4, 6 Geography					
	11, 12 Geology*	O	T mainly U few schools	WWL1	B.Sc. honours or general geology.	Qualified teachers should have a geology degree but any teacher can teach the course.
Manitoba	4, 9 Geography or General Science	R	B	-	Grade XII and one year teacher training.	A few teachers may have had up to four courses in geology.

<u>Grade</u>	<u>Name of Course</u>	<u>Required</u> <u>Optional</u>	<u>Availability</u> Terminal - T University-U <u>Both - - - B</u>	<u>Texts</u>	<u>Teacher</u> <u>Qualifications</u>	<u>Level of Teach-</u> <u>er Training</u>
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Saskatchewan	6	General Science	R	B	-	Teaching Certificate	Not applicable
	7	opt.					

Geology was an optional Grade 12 subject in eight Saskatoon colleges 1945-67 but was discontinued due to a limited number of applicants.

Alberta	8	Earth and Space Science	R	B	-	B. Educ.	Ranges from no training to professional geologists.
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British Columbia	8	Science*	R	B	-	None	Most teachers have none but a few have geology degrees.
	10	Science*	R	B	-	None	

A suggestion has been made recently by U. B. C. Education Faculty that geology might be taught in grades 11 and 12, provided adequate teacher training is available.

This information was supplied by fourteen geologists, mainly on university faculties, and over 20 secondary school teachers and principals in all ten Canadian provinces.

NOTE D

Texts used in Secondary Schools

The most widely used text in Canada is W. L. Ramsey and R. A. Burckley (1965) Modern Earth Science, Holt, Rinehart and Winston, Inc., New York, an up-to-date attractive and comprehensive volume. The book by E. S. Moore (1944) The Geology of Canada is used in at least one province and probably with detrimental results.

Canada, if there is one, is the Earth/^{Science}country, and yet the preparation and publication of general earth science text books in this country seems to be virtually non-existent!

The ESCP program has been used on a local option in some provinces but the experience is that teachers are not adequately prepared.

NOTE E

Participation of geologists on school curricula

Nfld. - None

N. S. - None

N. B. - A U.N.B. geologist, Dr. Alan Gordon, is acting on a Department of Education committee considering courses in geography (which includes some geology).

Quebec - Faculty of the five major universities proposed a course for the Institute (Grade 12 and 13) which would replace the introductory course at University. The course was a required options for Science student in 1967, was optional in 1968 but apparently was not included in the official course list for 1969. A course for Grade nine was based on ESCP but the Dept. of Education has not accepted it yet.

Ontario - The geology curriculum (RP-47) was constructed by a small group of university professors, and Dept. of Education officials. The content has been described as stilted and too formal. The implementation of courses in high schools is initiated by local school boards and principals.

Manitoba - Apparently the Manitoba Science Council has consulted geologists on the content of the General Science Curriculum.

Saskatchewan - Junior high curriculum for geology may be revised along ESCP lines. An attempt to adopt ESCP to lower grades produced problems, for example the teachers were not seasoned for the type of instruction.

Alberta - A geologist, Dr. D. W. R. Wilson, holds a joint appointment in the Department of Secondary Education and the Department of Geology, University of Alberta.

British Columbia - U. B. C. geologists are on the committee which develops the science curriculum including some geology. The committee meets a couple of times each month. The geology department is hiring a geologist to teach teachers.

NOTE F

Federal financing of secondary school education

In the United States, the National Science Foundation provides funds for all levels of educational achievement from elementary school training to post graduate and faculty research.

In Canada, the National Research Council provides funds for scientific research at all universities with the necessary facilities including the training of graduate students. Does such a programme constitute federal infringement on the provincial jurisdiction over education? Science is not bounded by provincial legislation! Let us start to recognize that national benefits can accrue by circumnavigating local prejudices!

NOTE G

Qualification and Training of Teachers

In Nova Scotia, the Atlantic Provinces Inter-University Committee on Science (APICS) has introduced a geology field institute for high school teachers in order that an awareness of geology be created.

In Nova Scotia, Quebec and Ontario, teachers qualified to teach the curriculum of geology or earth science are required to have taken a geology major at University. In Ontario, there are Type A (four year honours) and Type B (three year pass) teaching certificates but in a particular school the qualified teacher may not necessarily teach geology or a teacher who is not certified might teach the course, - if offered - on instruction from the principal!! The course is offered only in a small number of schools. In Ontario, offering geology or earth science seems to be at the option of the principal. In the other provinces, the teacher merely has a certificate to teach. There are cases where an optional course has been dropped because insufficient students did not elect.

At the Ontario College of Education, the student who selects geology as his speciality, takes courses in educational psychology, history and philosophy of education, administrative practice and methods of teaching geology. The last named course is presented in seminar fashion; the student does nine weeks of practice teaching but will only teach geology if the course is given in his assigned school. In 1968-69, eight students - the largest class yet - were registered; the course has been given for five years. For the 1969-70 year, not a single Ontario high school advertised for a teacher with geology certification.

The opinion is held that the best qualified teachers will have a B.Sc. degree in geology with some summer field experience. The teaching of so-called physical geology by "arts-minded geographers" is clearly unsatisfactory because the scientific value is minimal.

In a survey of high school teachers in Canada during 1965-66, Dean A. B. Van Cleave, University of Saskatchewan reported (Chemistry in Canada, October 1967) on 2327 teachers of science, and only 81 were teaching geology, of whom 10 had no University training. The actual numbers with percentage of totals were: B. C. - 9(1.9%); Alta. - 17(6.1%); Sask. - 1(0.5%); Man. - 3(2.3%); Ont. - 14(3.4%); Que. - 11(7.3%); N. B. - 7(7.2%); N. S. - 17(7.3%); P. E. I. - 0; Nfld. - 2(2.7%). Little consolation is provided by Dean Van Cleave's observation that if the equivalent of at least four university classes in their teaching discipline is necessary for a well trained secondary science teacher, then less than half of all teachers have the required preparation.

NOTE H

Summer Courses at University

Several universities including New Brunswick, Queens, Carleton, Western, Manitoba and Saskatchewan offer an introductory course at summer school. Some teachers take such a course merely to satisfy a science option. However, a well presented course whets the academic appetite for more, but only at Queens and Western are advanced courses offered. It would seem reasonable to establish at certain centres a sequence of general courses, such as mineralogy, earth history, geomorphology, economic geology and petrology - for those established teachers who wish to enhance their knowledge.

Adult education could be broadened by night courses making use of texts with a high content of illustrations, and lectures illustrated by projection slides and movies. Some activity of this type is occurring at several places in Canada.

Implementation of the ESCP in secondary schools would be expedited if some University earth science departments were prepared to offer the programme during their summer session. Academic ratification by the university would provide the student with appropriate course credit.

NOTE I

Communication with students

Communication can be carried out by individuals, or groups of individuals from organizations such as companies, university departments, government offices and local professional associations. However, an aggressive approach will probably be necessary. Of greatest importance is that the specific individuals must be direct, enthusiastic and capable of communicating on the same level as the students. Suggested programs can involve individual students or groups of students.

1. Present a lecture on up-to-date and stimulating ideas. There is nothing so deadly as a dull lecture on a dreary subject!!!
2. Show and discuss a modern film such as the G. S. C.'s "The Continuing Past". Promote the production of an imaginative film by the National Film Board - and this has been and is being done to some degree (Note J).

3. Attend Career Days or request admittance to a guidance class at high schools. January and February are the best times for the latter, but experience shows that an invitation will not necessarily be readily extended.
4. Organize a local field trip for a high school class. Trips to large urban centres should include the institute with earth science displays, such as the Royal Ontario Museum, Toronto, the Calgary Zoo with the dinosaur models, the American Museum of Natural History, New York, and the Smithsonian Institute, Washington.
5. Arrange a visit for appropriately sized groups to company offices, field operations, geology departments. Be sure to invite the teacher!!
6. On a national scale, a summer field camp for bright interested students. However, one such project has recently faded!
7. Offer summer employment to students who indicate an interest in earth science as a career.
8. Persuade national and local radio and television stations to broadcast pertinent programs particular material which may have been used previously and is still relevant.
9. Provide feature, specialized articles and book reviews to local newspapers, special papers such as Canadian Hi News, weekly colour supplements, student oriented periodicals such as Science Affairs, and national and international magazines.
10. Assist with the organization and provide programmes for local rock and mineral clubs.

NOTE J

Earth Science Films

The American Geological Institute has a catalogue of films with ratings on suggested type of audience, level of comprehension, general suitability, and source. However, some film libraries in the U. S. hesitate to ship to Canada, and

standard Canadian customs procedure which are suppose to provide for unhindered entry of films to educational institutions, usually result in a film arrival after the scheduled time for showing.

In Canada, a large number of excellent films are available and titles can be found in the catalogues of the following Film Libraries:

National Film Board, Ottawa
National Museum of Canada, Ottawa
National Research Council, Ottawa 7
Canadian Film Institute, 1762 Carling, Ottawa
Bell Telephone, Public Relations, Toronto (call collect)
Ontario Department of Mines, Parliament Buildings, Toronto
BP Canada, 1245 Sherbrooke Street West, Montreal
Shell Canada, P. O. Box 400, Terminal A, Toronto
Mobil Oil, Calgary
Sovereign Films, 277 Victoria, Toronto
McGraw-Hill Films, 330 Progress, Scarborough
Canadian Copper and Bronze Association, Toronto
Associations-Industrial Films, 135 Peter, Toronto 2B
Diadem Films, 76 Sheppard Avenue West, Willowdale, Ontario
Modern Learning Aids, 1875 Leslie, Don Mills, Ontario
Australian Embassy, Ottawa
USSR Embassy, Ottawa
Encyclopedia Britannica Films, 67 Kipling South, Toronto 18

Some excellent films of advanced technology have unsuggestive titles such as -From Pelvoux to Viso, Rig 20, and Phalaborwa. Some films are free from one library but another library for the same title charges a fee. One problem for which no solution has been yet found is the user who fails to return a film in time for the next request!

An extensive list of about 75 titles and their source can be found in the Eighteenth Annual Report, 1967-68, NACRGS, Geol. Survey Canada Paper 68-73, 34-40.

THE GEOLOGICAL ASSOCIATION OF CANADA
DEPARTMENT OF EARTH SCIENCES, UNIVERSITY OF WATERLOO
WATERLOO, ONTARIO, CANADA

Personnel, objectives and nature of the
Geological Association of Canada

The objectives of the Association are "to advance the science of geology and to promote a better understanding thereof throughout Canada". This is largely accomplished at present through the media of annual and sectional meetings and publications (Proceedings, Special Papers, Guidebooks, Newsletter, reduced subscription rate to Canadian Journal of Earth Sciences), together with the action on specific projects by G.A.C. committees. Projects and activities undertaken in the past few years have included studies on the professional and legal status of geologists in Canada, geological education in the secondary school system, the establishment of the Canadian Geological Foundation and Logan Memorial Fund, the award of the Logan Medal annually to a distinguished earth scientist, formation of affiliate membership for University geology clubs, prizes awarded at the National Science Fair.

The Association currently has some 1,300 members (approximately 1,050 Fellows, 100 Associates, 150 Student Affiliates) representing all Provinces and Territories except Prince Edward Island; 150 members live outside of Canada. The Association encourages all subsiences within geology and related fields and the backgrounds and specializations of the members are representative of the major divisions within the geological sciences. The Association is the only national scientific organization in Canada that attempts to represent all the geological sciences.

The officers of the Association are the President, Vice-President, and Secretary-Treasurer who operate within a Council of fourteen. Half of the Council is selected on a regional basis, the other seven are elected at large. Councillors serve two-year terms. There are seven permanent committees and a number of ad hoc committees.

C. R. Barnes,
Secretary-Treasurer,
March 21, 1969.

THE GEOLOGICAL ASSOCIATION OF CANADA
DEPARTMENT OF EARTH SCIENCES, UNIVERSITY OF WATERLOO
WATERLOO, ONTARIO, CANADA

C. G. WINDER - Professor and Head of Department of Geology,
University of Western Ontario,
London, Canada.

B.Sc. - 1949 - University of Western Ontario.

M.Sc. - 1951 - Ph.D. - 1953 - Cornell University, Ithaca, N.Y.

Joined the faculty of U.W.O. in 1953 as
lecturer, became Head of the Department
in 1965.

During summer seasons has carried on field
work in the Maritimes, Ontario and Alberta
for governments, industry and consultants.

Publications have been concerned almost
entirely with the Paleozoic stratigraphy
of Southern Ontario, - most recent are
concerned with micropaleontology, and
specifically conodonts.

Chairman of the Ontario Stratigraphic Committee.

Chairman for Publicity, International Geological
Congress, 1972.

THE TEACHING OF EARTH SCIENCES IN CANADIAN
SECONDARY SCHOOLS

A brief for presentation

at the

Mines Ministers Conference

by the

Alberta Society of Petroleum Geologists

Canadian Institute of Mining and Metallurgy

and the

Geological Association of Canada

represented by

Dr. M.E. Hriskevich, President, ASPG

Prof. R. Dufour, Chairman, General Committee on Education, C.I.M.

Prof. C.G. Winder, Chairman, Public Information Committee, G.A.C.

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This brief, concerned with the teaching of an Earth Science course in Canadian secondary school curricula, has been prepared for presentation at the Mines Ministers Conference, to be held in Toronto on September 15, 16 and 17th, 1969. The presentation is made as a combined effort by the Alberta Society of Petroleum Geologists, the Canadian Institute of Mining and Metallurgy and the Geological Association of Canada.

Purpose

The purposes of this brief are: (1) to sharpen the awareness of the need, and the lack, of an Earth Science course in the secondary school curricula in Canada, and (2) to delineate the logic of introducing such a course into the curricula.

It is suggested that the Mines Ministers give full support to the proposals made herein.

Rationale

1) The Canadian Institute of Mining and Metallurgy submitted a brief to the Solid Earth Science Study Group (copy herewith attached) suggesting the financial assistance for research in solid-earth sciences be increased in certain areas because of a predictable increase in the demand for mineral resources which will become increasingly difficult to discover. The argument is presented that in order to attract, train and retain in Canada competent technical manpower, research funds should be available in the form of mission-oriented grants to universities and tax incentives for industry. A study of manpower requirements clearly indicates that an increased number of personnel for the mineral industry will be required in the near future.

2) The Geological Association of Canada submitted a brief to the Solid-Earth Science Study Group (copy herewith attached) recommending that Earth Science be introduced in Canadian secondary schools in order to:

- a) provide a much larger number of people a better understanding of their physical environment;
- b) provide an appreciation of the length of geological time and the evolution of life;

- c) given an understanding of the dimensions of space;
- d) draw attention to the importance of Canada's mineral industry; and
- e) attract a greater number of students to professions in the mineral industry so that Canada can maintain its position in the world's competitive markets.

Recommendations

The following recommendations are made as a course of action:

1. It is suggested that the Mines Ministers support and recommend to decision-making officials that an Earth Science course be more readily available in secondary school science curricula in Canada.
2. A national committee of representatives from organizations of related interests should study means by which such a course could be implemented. The course of action proposed in the brief by the Geological Association of Canada is that the Earth Science Curriculum Project (E. S. C. P.) developed by the American Geological Institute be adopted with modification to suit Canadian needs.
3. The committee should study methods that will qualify more teachers to a high level of competency for an Earth Science course. The course of action outlined in the G.A.C. brief is recommended.

The Alberta Society of Petroleum Geologists, the Canadian Institute of Mining and Metallurgy and the Geological Association of Canada are prepared to assist within their means to introduce an Earth Science course into Canadian Secondary School curricula as soon as possible.

THE CANADIAN INSTITUTE OF MINING AND METALLURGY

"VIEWS ON RESEARCH IN SOLID EARTH SCIENCES IN CANADA"

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A BRIEF SUBMITTED TO THE
SOLID EARTH SCIENCES STUDY GROUP

MONTREAL, QUEBEC

JUNE, 1969

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INTRODUCTION

The General Committee on Education of the Canadian Institute of Mining and Metallurgy is primarily concerned with the availability of adequate numbers of trained personnel for all phases of the Canadian mineral industry. In this period of great industrial expansion and technological advance, many new educational and sociological problems must be recognized, studied, and resolved to ensure the continued expansion of our mineral industry at a rate comparable to that of the general Canadian economy. The Committee is also concerned with the awareness of Canadians generally as to the nature and importance of the mineral industry to Canada both economically and culturally.

Within the framework of these objectives the General Committee on Education of the Institute is pleased to submit some comments on research in the solid earth sciences in Canada to the Study Group.

These comments will be presented under the following headings:

- I - A Perspective on Research in the Solid Earth Sciences.
- II - The Agencies of Research in the Solid Earth Sciences.
- III - The Direction of Research in the Solid Earth Sciences.
- IV - Sociological Aspects of the Mineral Industry - A Subject for Research.
- V - Recommendations.

To complete the introductory remarks, it is emphasized that although research in the solid earth sciences is in itself of indirect concern to the General Committee on Education of the Institute, it is nevertheless closely related to the processes of education as well as being of very great importance to the continuing expansion of the Canadian mineral industry. Also influencing the substance of this submission is the very broad representation from the mineral industry on the Committee, and, of course, its very close ties with the industry. It is hoped that the following views,

which we believe to be rather objective in outlook, will be of value to the Study Group.

I - PERSPECTIVE ON RESEARCH IN THE SOLID EARTH SCIENCES

For the purposes of this study, "Research in the Solid Earth Sciences" has been defined by the study group as research applied to the solid earth, and to mineral resources up to the stage of extraction. This is an important concept as it establishes the subject under study as one facet of a broad spectrum of vitally important scientific and economic research subjects. It is suggested that although increased research effort in any worthy field is a good thing, and easy to recommend, real requirements must be carefully gauged in relation to other fields, and confined to reasonable limits.

There are many organizations and institutions in Canada involved in research in the solid earth sciences. Consequently the total amount expended annually is very difficult to estimate. However, the following figures, representing the amounts issued in research grants relating to the earth sciences by the National Research Council and the Department of Energy, Mines and Resources during the 1968-69 period, are of interest. These funds, incidentally, would constitute a major portion of the money available annually for earth science research in Canada.

N.R.C. Grants:

Research in Earth Sciences	\$2,714,470
Research in Chemical and Metallurgical Fields	<u>2,041,670</u>

N.R.C. Total \$4,756,140

E.M. & R. Grants:

Research in Mineral Economics	\$ 5,000
Research in Geological Sciences ...	220,000
Research in Mining & Metallurgy ...	<u>100,000</u>

E. M. & R. Total \$ 325,000

Overall Total 1968-69 \$5,081,140

This listing shows that \$2,934,470 of a total \$5,081,140, or 57.7% of the total funds available for research in mining, metallurgy, and the earth sciences is available to earth science projects.

Further consideration of funds available for grants in solid earth science research shows an annual increment of + 7.1% between 1968-69 and the estimated total for 1969-70. A like increment exists between the 1967-68 and 1968-69 totals.

It appears on the basis of these figures and present conditions, that financial support and provision for annual increases in funds available for research in the solid earth sciences are adequate. However, an examination of the operating grants provided by NRC shows that the majority of the funds spent in 1968 were received by those in geology. When we say that financial support for research in the earth sciences appears adequate, it is naturally on the present conditions of geology that this statement is made. Further examination shows that few geophysicists and geochemists are trained in Canada and the amount of money spent for NRC support in these areas is small. Consequently, both research and training need to be expanded in these areas. The terms of reference of the Solid-Earth Science Study Group go "up to the stage of extraction by drilling, mining or other means"; it would then appear that the term Solid-Earth Science should include Geology, Mineralogy, Geography, Geophysics, Geochemistry, Mining and Petroleum Engineering. This definition is somewhat uncommon in that engineering is not normally considered to be a science. The fact remains that certain facets of earth-physics have traditionally been and continue to be studied by Mining and Petroleum engineers rather than by Geophysicists e.g. rock mechanics, properties of porous media, flow through porous media, electric, radio-active and other forms of logging, in-situ phase behavior, etc. Despite the fact that these topics have been and continue to be studied, the ultimate aim being the application of the resulting knowledge, the intent is no different than that held by those in Geology or Geophysics. Consequently, these studies must properly be considered to be scientific and by the same token those conducting such studies must at the time of conduct be considered to be Solid-Earth Scientists, irrespective of the fact that they be engineers by profession.

Inside the grey area that we just mentioned, there is a sector of the Canadian mineral industry which has been almost completely forgotten by NRC, i.e. the petroleum industry. The statistics indicate that, of the 1968 total Canadian mineral production of \$4.735 billion, 24.5% was due to petroleum and natural gas. On the basis of these figures and the observation that out of a total NRC operating grant of close to \$30 million, \$16,000 was awarded for research in petroleum engineering, one can only conclude that this section has been forgotten. If the situation is to be changed, it would appear that the Government must take steps to get more people involved by changing the size of overall grants, or the manner in which they are awarded or both. It may also be necessary to provide government assistance or sponsorship of appropriate journals for the dissemination of research results as is currently being done with regards to the Metallurgical Quarterly. Even such action may not be sufficient, for it must be realized that essentially all of the Petroleum Engineering Research conducted by industry is to be found in the United States. Despite the fact that Canadian subsidiaries pay their share, the Canadian society is deprived of the advantages of having such facilities in its midst, and the Canadian economy is deprived of the benefits normally resulting from direct spending by such institutions and associated spin-off. These factors are important in themselves; however, of added importance is the fact that if the situation is not changed, the training of men in Canadian universities will continue to pose a problem, for it will continue to be necessary for our most brilliant graduates to seek employment in research facilities abroad. This effect has been operative for some time, the result being that the more brilliant students avoid these fields, which in turn reduces the number and quality of graduates and research results. From this it may be seen that the situation is somewhat of a snowball.

It is realized that the recommendations proposed herein are by no means modest and that their acceptance would prove costly. Consequently it is only fair to ask, how important is their implementation to the nation? After all, the current situation hasn't just developed, it has been building up for years, during which time the industry has continued to thrive at an increasing rate. The answer to this question as in the case of the previous ones cannot be given with absolute certainty. However, one can observe that despite the fact that heavy oil has been produced in Alberta for some 43 years, little research has been conducted

on the nature of such deposits. As a result, our current technological skill is such that we anticipate recoveries from such deposits to be of the order of 5 to 10 percent. Similarly, coal has been produced in Alberta for many years without the aid of an appreciable amount of fundamental research. A combination of economics and lack of more efficient techniques brought production to a standstill about twenty years ago. Recently new techniques and foreign markets have been responsible for reinitiating production on a great scale. It is interesting to note that the whole operation appears to be what might be termed a catered affair. That is: production is conducted by foreign interest, using foreign equipment and personnel and the product is sold abroad. This has the effect of placing foreign smelters on a better competitive footing with our fledgling metallurgical industry. Other than the direct spending and peripheral employment this operation provides, the direct benefit to the nation consists of a royalty of the order of ten cents per ton, which is scarcely adequate compensation for the resulting pollution, leave alone payment for the depletion of a non-replenishable resource.

There is a geographical area where a great deal more money will have to be spent on earth science research, i.e. "the North". There is sufficient historical evidence to show that accelerated development of the North will require a much greater commitment to earth science research.

II - THE AGENCIES OF RESEARCH IN THE SOLID EARTH SCIENCES

A good proportion of research in the solid earth sciences in Canada is carried out at Universities. As noted, the major portion of direct financing of this research is supplied by the Federal government through a grant system. This process is working well, and seems to be a desirable one in principle, especially from the standpoint of education and training.

Certain departments of the Federal and Provincial governments, notably the Geological Survey of Canada, also carry on considerable research of excellent quality in the earth science field. Again, financing is supplied largely from governmental sources.

Research efforts by private agencies are usually of very practical orientation, and can be divided into roughly

three categories. They may be described as follows:

- 1) Research by firms and/or individuals interested in developing mineral exploration equipment and techniques which can be sold or rented at a profit.
- 2) Research donations, usually given by larger mineral resources concerns, either in the form of research equipment or scholarships, which contribute significantly to solid earth science research and education. These facilities are usually administered and used by Universities.
- 3) Research in the earth sciences carried on internally by mineral resource firms, usually the larger ones, to develop exploration equipment and/or techniques which hopefully will lead to the discovery of new mineral deposits.

Since it does not take long to publicize a product of the first category of private research, and the second deals mainly with the provision of research facilities, little more need be said concerning them. However, there has been much criticism, especially in the academic fields, of the tendency of mineral resource companies to keep the results of some of their private research and exploration work classified and therefore unavailable to research groups and the public in general. This criticism is felt unjustified insofar as such information, gained by private expenditure, is often hard to evaluate in the light of possible economic significance. Where there is doubt, it is unwise to release information of this nature in the same sense as it would be unwise for a scientist to publicize a new chemical process without proper patent protection.

It is suggested that some form of tax incentive might possibly induce mineral resource companies to review and re-evaluate their research data more often with a view to its release for public use.

III - THE DIRECTION OF RESEARCH IN THE SOLID EARTH SCIENCES

The direction of research in the solid earth sciences in Canada falls in great part to the National Research Council by reason of its grants-in-aid of geological research which annually total over two million dollars. At the same

time universities, governmental agencies of both Federal and Provincial levels, and private research organizations do generate and direct their own projects. In addition, National Research grants are usually awarded on recommendations from these other groups, particularly earth science departments of universities.

It is believed that the concept of one main integrating agency to guide and finance research efforts in the earth sciences is basically sound. However, there is some doubt as to whether the resources now available are being used as effectively as they might be. At present grants for the most part are being given in aid of individual research, or research projects of limited scope. It would seem reasonable that, with increasing complexity in earth science research subjects, perhaps emphasis should be placed on the larger project approach. That is, we might encourage more co-operative research efforts on different phases of large projects by different agencies and/or individuals.

Furthermore, since the funds for research are limited, duplication should be avoided wherever possible. However, this approach to longer projects, unless carefully regulated, can compromise individuality and creativity which are valuable assets in any field of research and also can compromise the educational role of research so important to the mineral industry. The possibility of attracting and training technical manpower at the universities is directly related to the availability of support for research, and to achieve excellence in forming personnel for the needs of the mineral industry, research is an important pedagogical tool. This is another reason why research at the university level should not be curtailed but rather greatly encouraged.

This does not mean that we are against the large project approach in general and in certain fields; the following is an example for such an approach which has given very interesting results.

The National Advisory Committee on Research in the Geology Division, C.I.M., has initiated such large scale projects aided by grants from the Department of Energy, Mines and Resources. One of these was the study into the development of computer processable files for the storage and retrieval of geological data. A system derived from this study will eventually be implemented on a national scale, and will be of inestimable value to research and educational activities in the solid earth science fields. There have

been many studies on the application of computers to geological problems, of course, and many of them quite valuable. But only on the basis of a "large project" approach could this step towards a truly meaningful application of computerization be taken.

It is also suggested that because of the rather startling predictions for increases in demands for mineral products within the next few years, the percentage of total funds available for research grants in the solid earth sciences should be increased in the economic sectors.

IV - SOCIOLOGICAL ASPECTS OF THE MINERAL INDUSTRY - A SUBJECT FOR RESEARCH?

The sociological aspects of the mineral industry as a whole are definitely worthy of serious study. Sociologists and geographers have investigated certain problems related to the subject from time to time, but lacking an appreciation of mineral economics these studies are usually found to be somewhat superficial.

Within the terms defining the extent of this study, only the sociological aspects of exploration and development phases of the mineral industry should be included here. However, the mineral industry cannot be considered piecemeal in this particular regard because of the integrated and interdependent nature of its communities and operations.

The recent study of manpower requirements for the mineral industry carried out under the auspices of the General Committee on Education of the Institute indicated a definite need for increased numbers of all categories of personnel for the mineral industry within the near future. It also indicated that rather serious losses in trained personnel were occurring in the industry, and that new personnel were not entering the industry at a satisfactory rate.

Further studies instituted by the Committee regarding this matter have thus far indicated that the problem is serious, and that although the reasons for its development appear simple, they are in reality very complex from both economic and sociological points of view. In order to solve the problem, and it is emphasised that it is necessary to do so, facts are required which will be made available only through a thoroughly objective research campaign.

It is submitted therefore, that this is a subject requiring the attention of research agencies involved in the field of solid earth sciences.

V - RECOMMENDATIONS

The main recommendations set forth in the preceding sections can be summarized as follows:

- 1) The present level of financial support given to the solid earth sciences, and the provision for annual increase seem adequate in geology but inadequate in applied geophysics, applied geochemistry, petroleum, coal and in certain geographical areas such as "the North".
- 2) Research in the solid earth sciences is carried out by universities, governmental agencies, and private organizations and companies. When considering the larger project aspect, joint projects between university and industry, and government agencies in certain fields should be encouraged.
- 3) Research at the university level should receive even more support, and in emphasizing project research, care should be taken to ensure continued support of the individual and projects of limited scope. This is important from the standpoint of generation of new ideas, and also to our system of education in the solid earth science field.
- 4) Possibly a tax incentive system would improve availability of exploration and/or research data from private sources.
- 5) It is suggested that research emphasis be placed on the economic aspects of the earth sciences. This should be done because of the predicted increase in demand for mineral resources, and because mineral deposits are becoming more difficult and more expensive to locate. Geological techniques in mining and exploration, applied geophysics, and applied geochemistry must be developed to greater levels of efficiency if the necessary new sources of supply are to be found.
- 6) The sociological aspects of the mineral industry form a subject for research. The study should be carried out under the direction of an earth science agency.

